THE ARAB REPUBLIC OF EGYPT

MINISTRY OF DEVELOPMENT, HOUSING AND LAND RECLAMATION

GENERAL AUTHORITY FOR REHABILITATION

PROJECTS AND AGRICULTURAL DEVELOPMENT

FEASIBILITY STUDY
ON
THE NORTH HUSSINIA VALLEY & SOUTH PORT SAID
AGRICULTURAL DEVELOPMENT PROJECT
VOLUME. V

DRAWING

JUNE 1984

JAPAN INTERNATIONAL COOPERATION AGENCY

THE ARAB REPUBLIC OF EGYPT

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DRAWINGS

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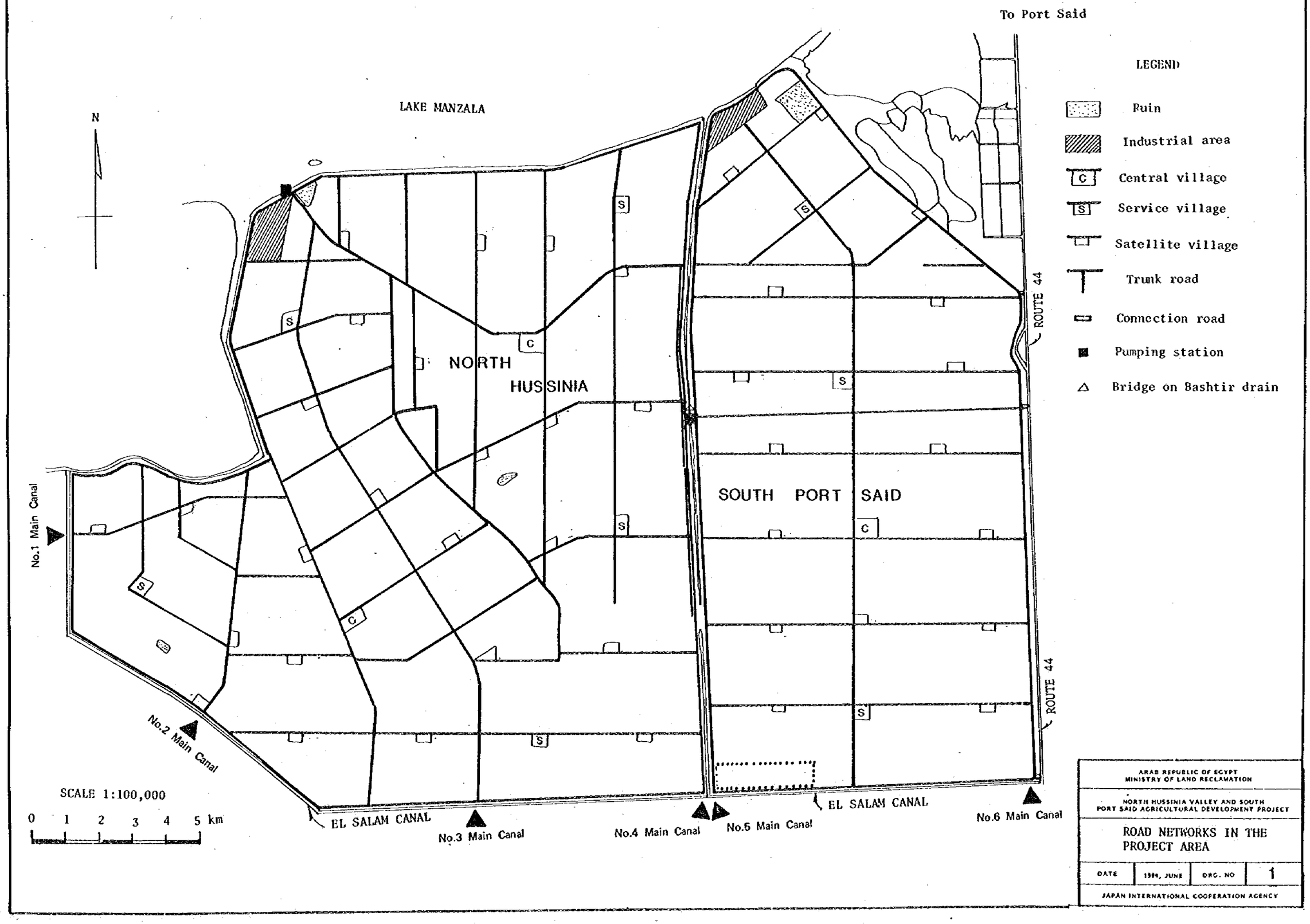

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MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

ROAD NETWORKS IN THE PROJECT AREA

DATE	1984, JUNE	DRG. NO	1

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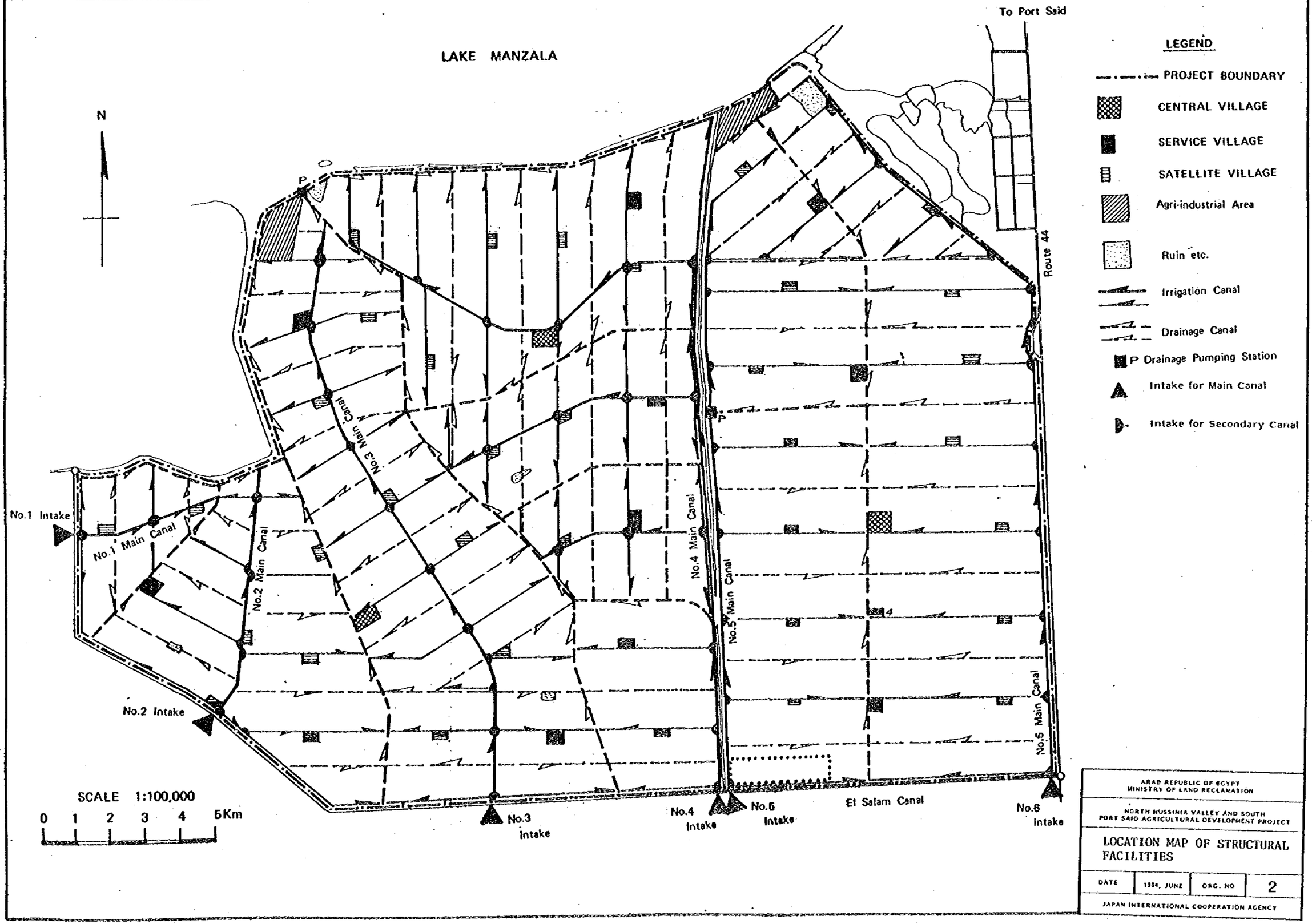

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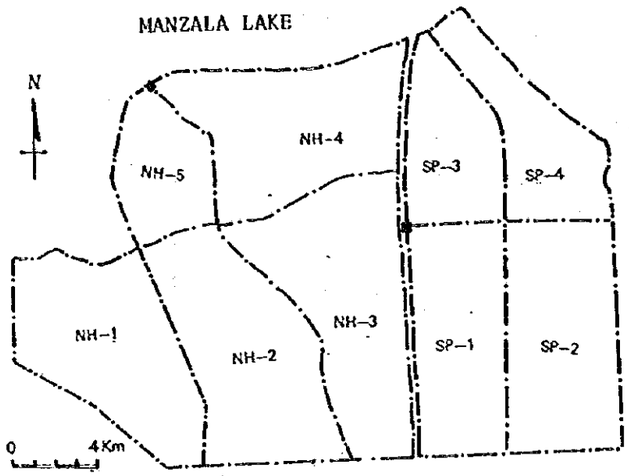
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

LOCATION MAP OF STRUCTURAL FACILITIES

DATE	1984, JUNE	DRG. NO	2

JAPAN INTERNATIONAL COOPERATION AGENCY



LOCATION MAP

CONSTRUCTION PHASING OF PROJECT AREA

		Gross Area (Irrigable Area)
SP-1	(South Port Said No.1)	8,981
SP-2	(" No.2)	10,653
SP-3	(" No.3)	5,905
SP-4	(" No.4)	6,441
NH-1	(North Hussinia No.1)	11,554
NH-2	(" No.2)	12,369
NH-3	(" No.3)	13,672
NH-4	(" No.4)	11,509
NH-5	(" No.5)	4,716
Total		85,800 Feddans

CANAL LENGTH AND STRUCTURE'S NUMBER IN PROJECT AREA

DECRIPTION	UNIT	SOUTH PORT SAID				NORTH HUSSINIA					TOTAL
		SP-1.	SP-2.	SP-3.	SP-4.	NH-1.	NH-2.	NH-3.	NH-4.	NH-5.	
MAIN CANAL	m.	8,800	11,200	7,550	12,200	9,000	12,400	26,300	13,900	4,800	106,150
SECONDARY CANAL	m.	22,100	26,730	21,050	21,270	39,500	37,850	43,120	36,870	16,200	264,690
CANAL ALONG HOUSING AREA	m.	2,700	6,500	5,400	3,600	6,500	6,300	6,500	7,200	2,900	47,600
MAIN DRAINAGE CANAL	m.	15,700		9,600		12,300	19,500	31,300	21,000		109,400
SECONDARY DRAINAGE CANAL	m.	18,650	26,420	15,950	16,650	30,600	37,300	32,450	29,200	11,200	218,420
GRAVEL PAVING OF ROAD	sqm.	33,400	38,050	29,350	29,000	58,200	47,900	75,350	73,150	28,050	412,450
CONNECTION ROAD	Line		2.		1.						3.
IMPROVEMENT OF DIKE	m.	B 21,000			A 9,900	B 49,100					80,000
INTAKE OF MAIN CANAL	ps.	1.	1.			2.	1.	1.			6.
PARSHALL FLUME IN MAIN CANAL	ps.	1.	1.			2.	1.	1.			6.
SPILLWAY IN MAIN CANAL	ps.			1.	1.	2.		4.	1.	1.	10.
CHECK IN MAIN CANAL	ps.	1.	1.				1.	1.			4.
INTAKE IN SECONDARY CANAL	ps.			5.	6.	13.		21.		6.	86.
CHECK IN SECONDARY CANAL	ps.	5.	5.	4.	3.	6.	8.		6.		40.
OUT FALL OF SECONDARY CANAL	ps.			5.	6.	13.	13.			6.	83.
BRIDGE OF MAIN CANAL	ps.	5.	5.	4.	6.	4.	5.	10.	5.		47.
BRIDGE IN DRAINAGE MAIN CANAL	ps.	4.						6.	6.	4.	41.
	ps.										
BRIDGE ON BAQAR DRAIN	ps.	1.									1.
DRAINAGE PUMPING STATION	Sta.	1.				1.					2.
LAND CONSOLIDATION	Fed.	8,981	10,653	5,905	6,441	11,509	12,369	13,672	11,554	4,716	85,800

ARAB REPUBLIC OF EGYPT
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NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

CONSTRUCTION PHASE IN THE PROJECT AREA

DATE	1986, JUNE	DRG. NO	3

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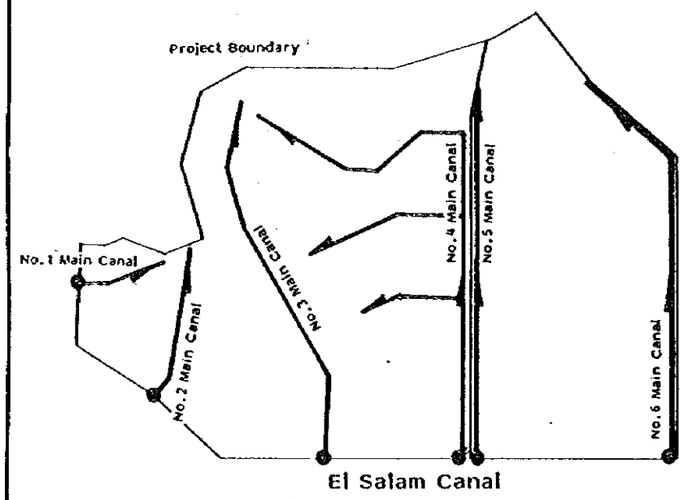
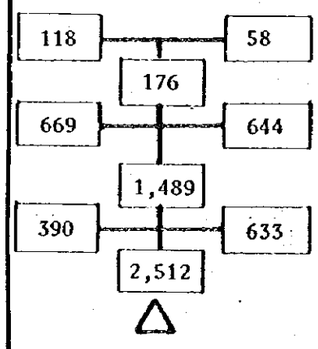
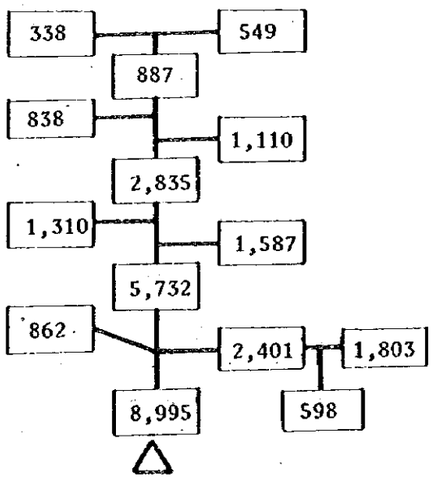


LOCATION MAP

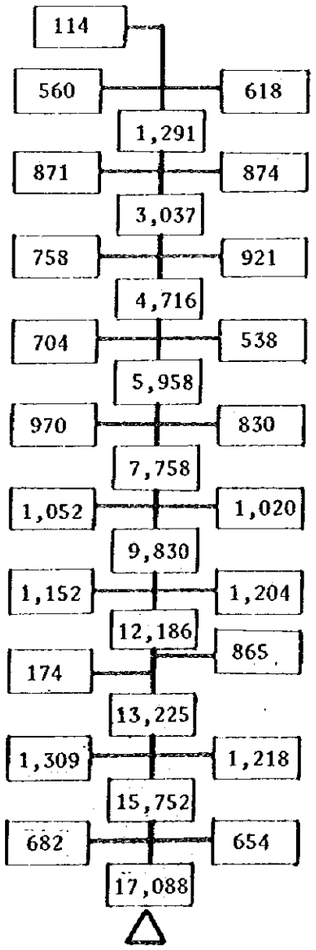
CANAL NAME	feddan
No.1 Main Canal	2,512
No.2 Main Canal	8,995
No.3 Main Canal	17,085
No.4 Main Canal	25,225
No.5 Main Canal	14,885
No.6 Main Canal	17,095
Total	85,800 = (110,000 x 78%)



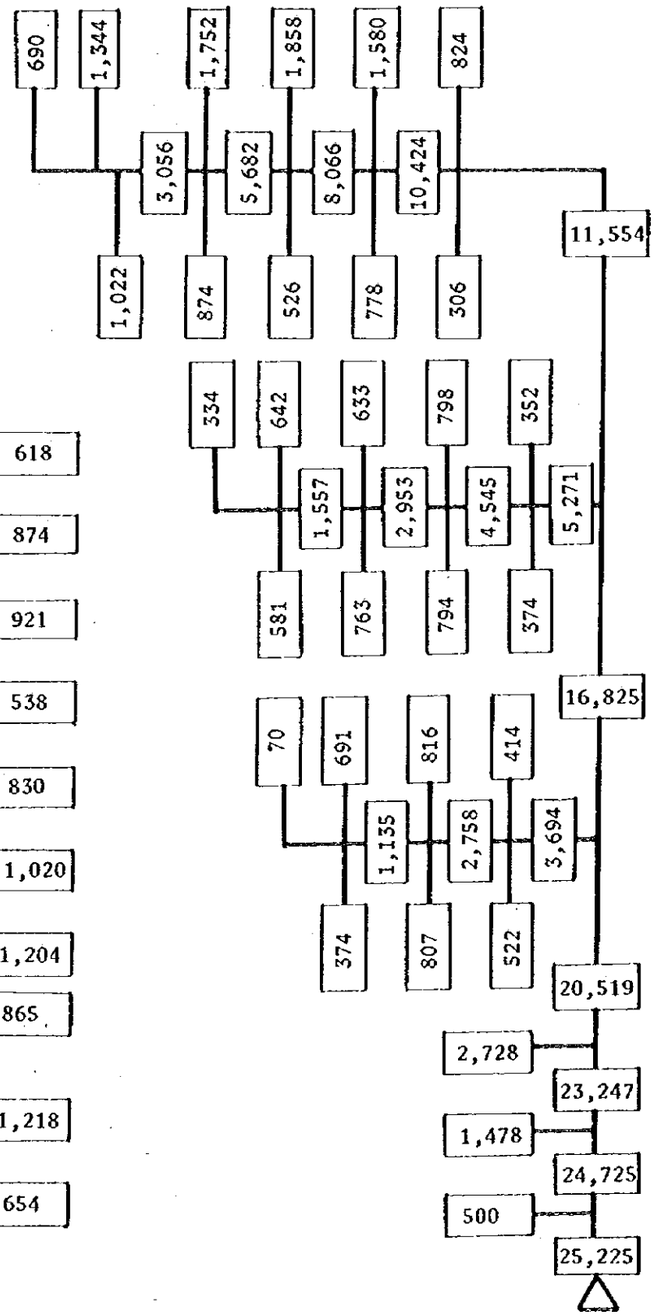
No.1 Main Canal



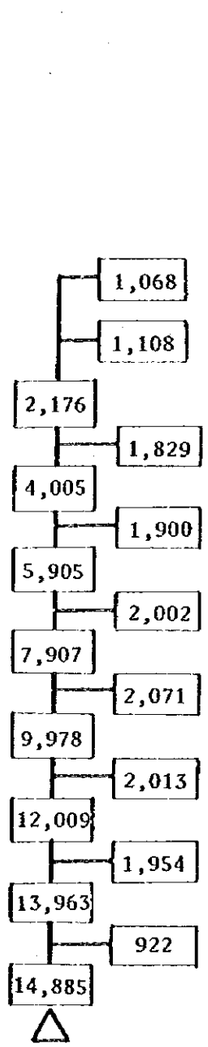
No.2 Main Canal



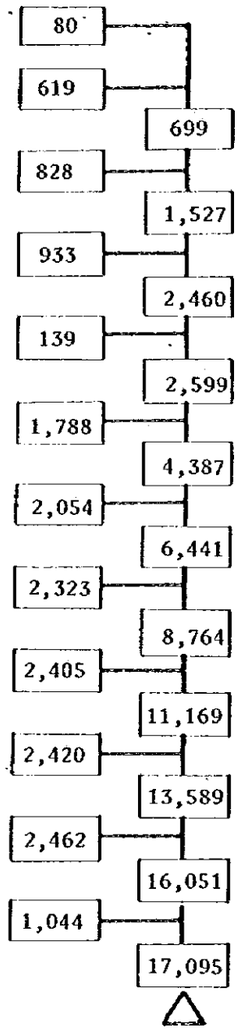
No.3 Main Canal



No.4 Main Canal



No.5 Main Canal



No.6 Main Canal

All area is shown in feddan (=0.42 ha).

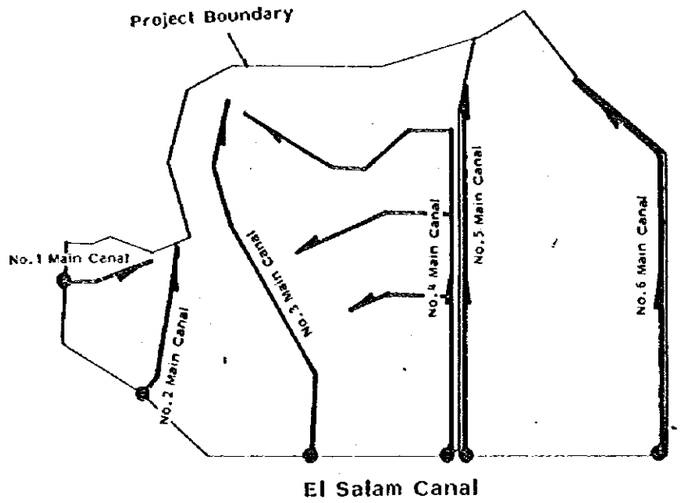
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

IRRIGATION AREA ARBORESCENCE

DATE	1985, JUNE	DWG. NO	4

JAPAN INTERNATIONAL COOPERATION AGENCY

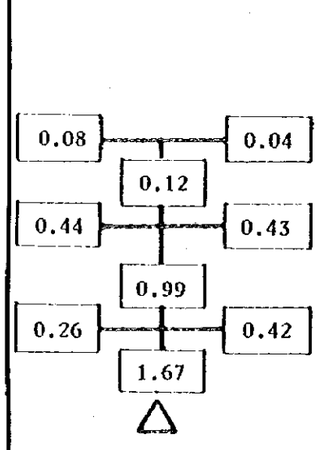


LOCATION MAP

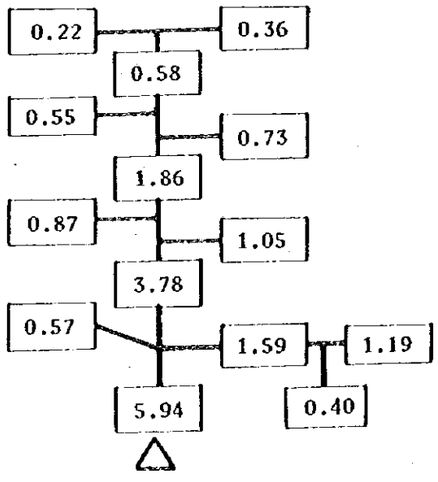
CANAL NAME	feddan
No.1 Main Canal	2,512
No.2 Main Canal	8,995
No.3 Main Canal	17,085
No.4 Main Canal	25,225
No.5 Main Canal	14,885
No.6 Main Canal	17,095
Total	85,800 = (110,000 x 78%)

Remarks.

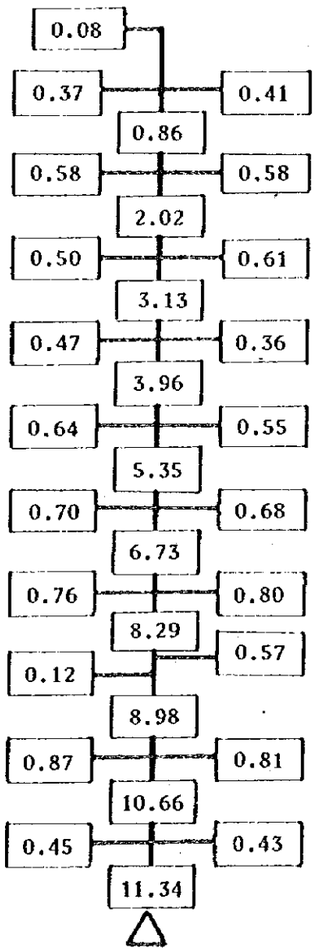
Water duty for irrigation



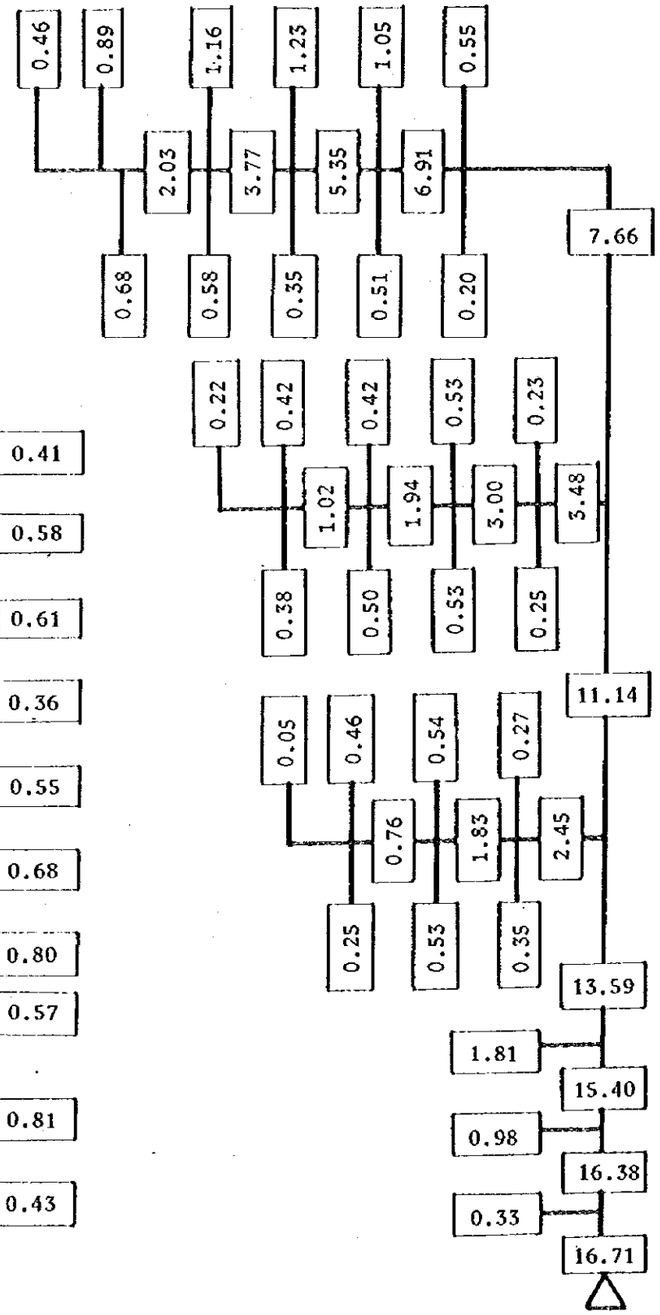
No.1 Main Canal



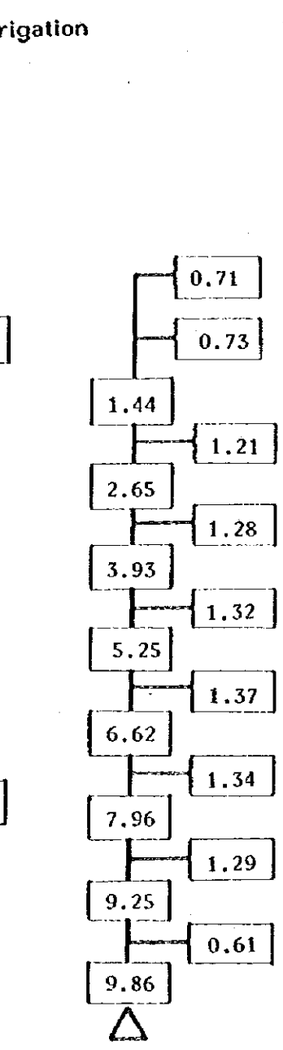
No.2 Main Canal



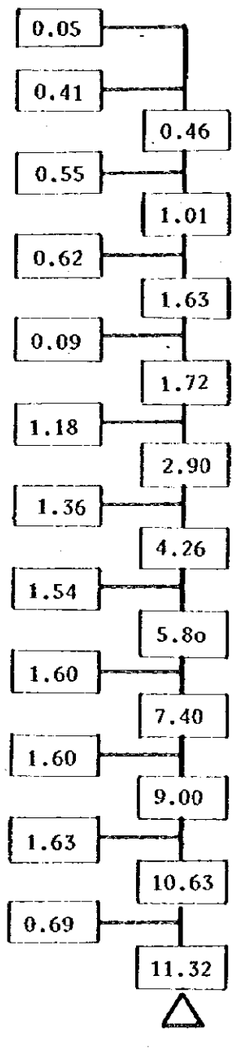
No.3 Main Canal



No.4 Main Canal



No.5 Main Canal



No.6 Main Canal

All dimensions are given in $m^3/sec.$

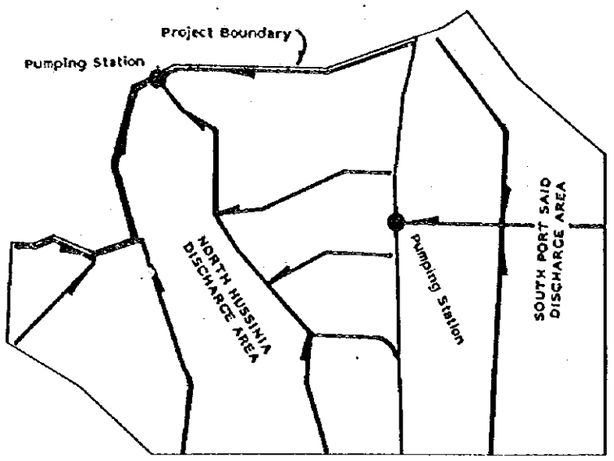
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

IRRIGATION CAPACITY
ARBORESCENCE

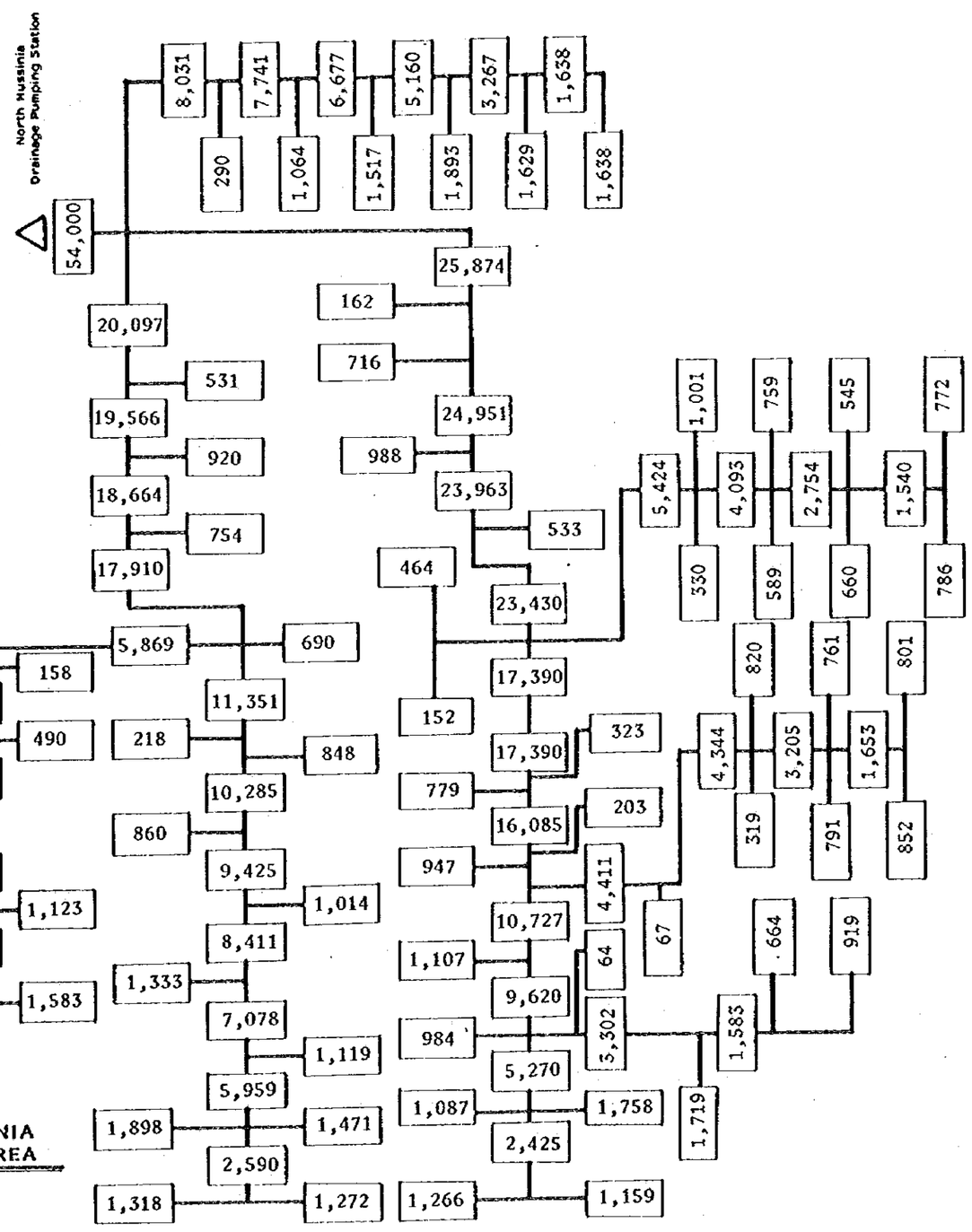
DATE	1984, JUNE	DWG. NO	5

JAPAN INTERNATIONAL COOPERATION AGENCY

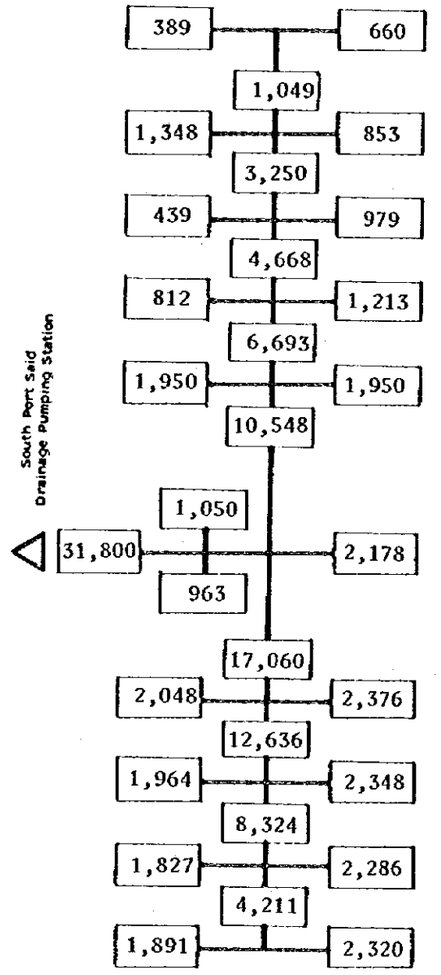


LOCATION MAP

	feddan
North Hussinia Discharge Area	54,000
Port Said Discharte Area	31,800
Others	24,200
Total	110,000 feddan



NORTH HUSSINIA DISCHARGE AREA



SOUTH PORT SAID DISCHARGE AREA

All area is shown in feddan (=0.42 ha).

ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

DRAINAGE AREA ARBORESCENCE

DATE	1980, JUNE	DWG. NO	6

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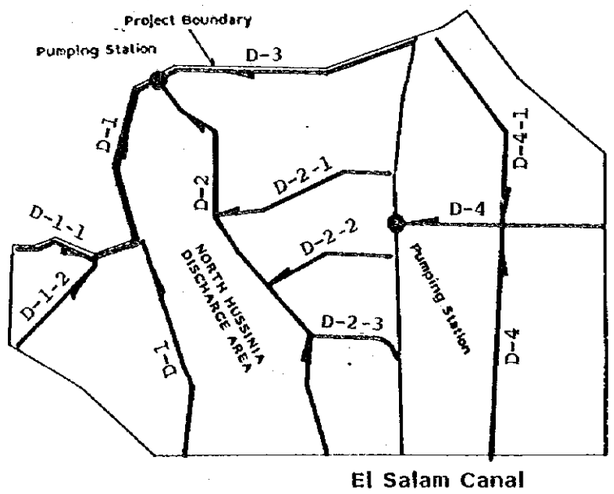
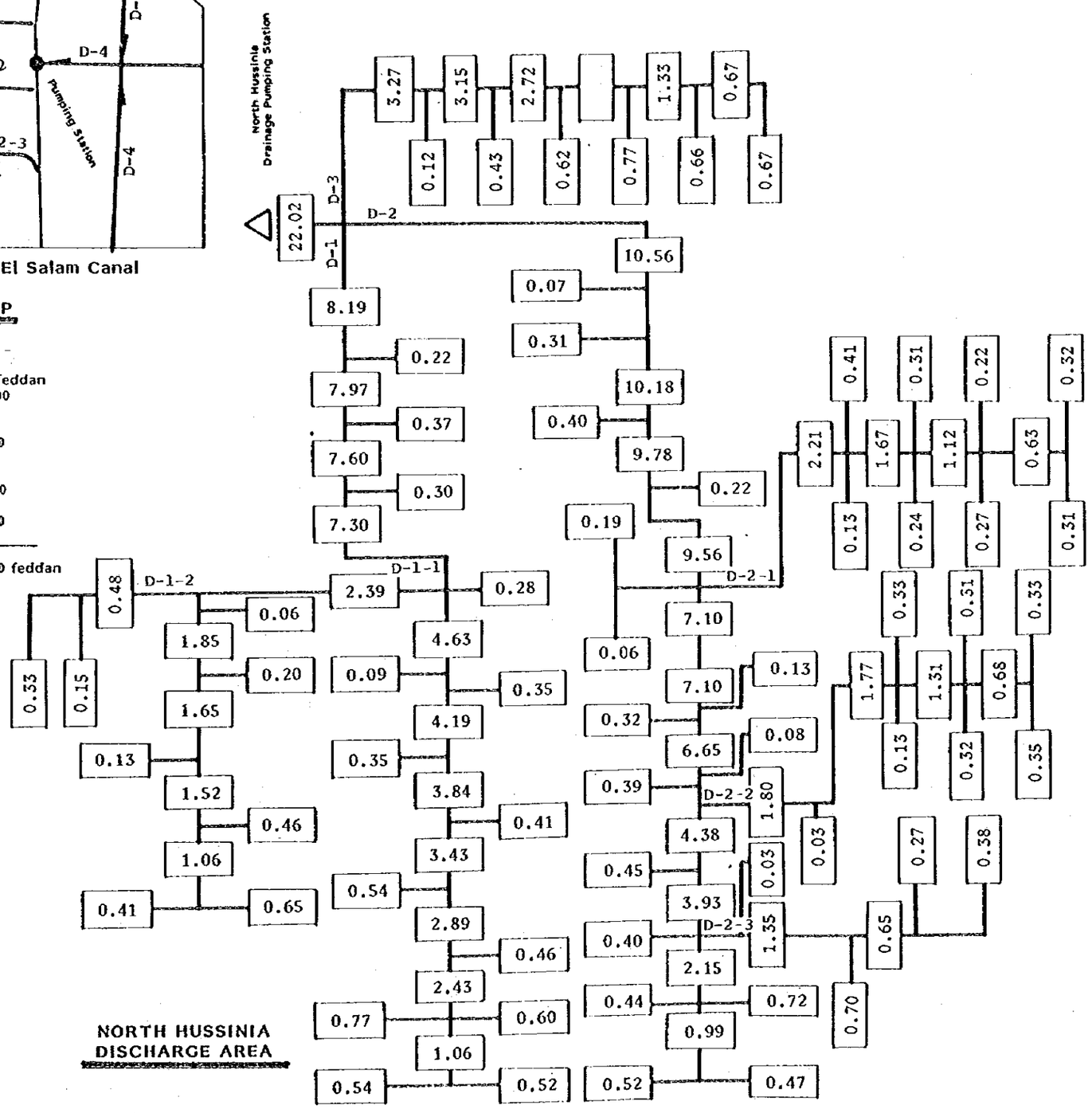
LAKE MANZALA



LOCATION MAP

	feddan
North Hussinia Discharge Area	68,790
Port Said Discharge Area	40,850
Agro-industrial Area	300
Bagardrain	60
Total	110,000 feddan



NORTH HUSSINIA DISCHARGE AREA

SOUTH PORT SAID DISCHARGE AREA

All dimensions are given in $m^3/sec.$

ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

DRAINAGE CAPACITY
ARBORESCENCE

DATE	1984, JUNE	DWG. NO	7

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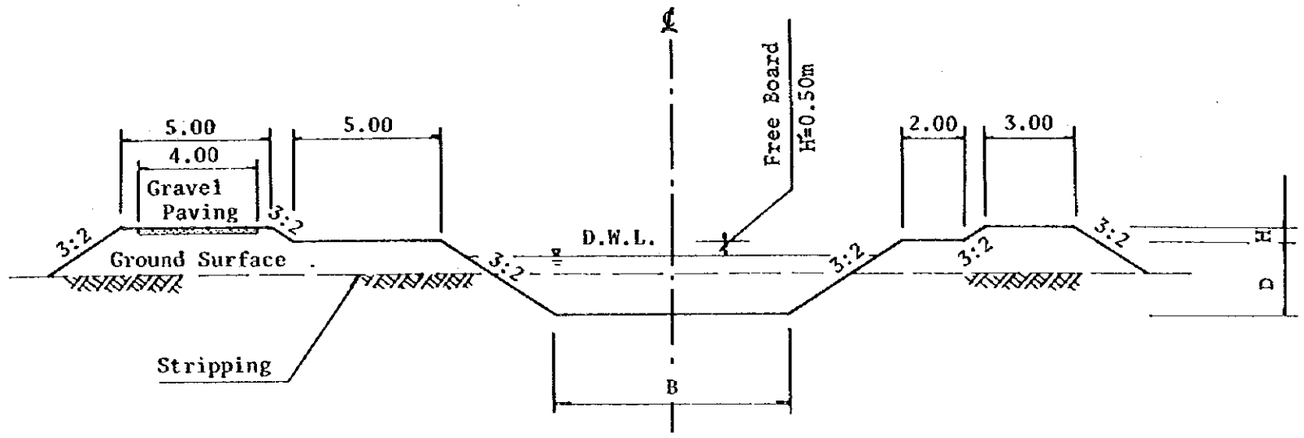
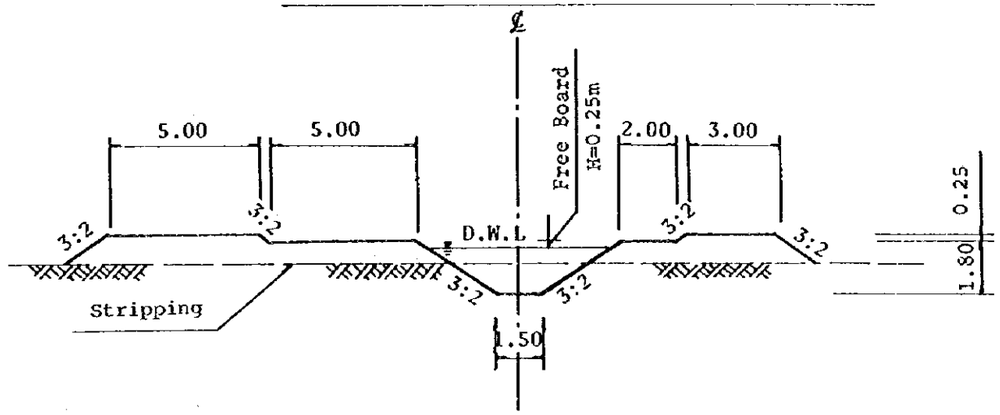
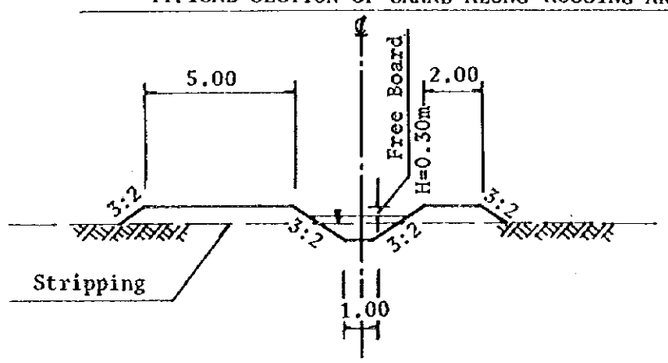
TYPICAL SECTION OF MAIN CANAL



TYPICAL SECTION OF SECONDARY CANAL



TYPICAL SECTION OF CANAL ALONG HOUSING AREA



Dimensions of the Main Drainage Canals

Block	Name of Canal	Discharge ($Q:m^3/sec$)	Slope (1/I)	Bottom Width (B:m)	Canal Depth (D:m)	Bank Hight (H:m)	Length (L:m)
North Hussinia	M-1	0.99	10,000	2.00	1.50	0.25	3,500
	M-2	3.78	10,000	3.00	2.20	0.25	5,500
	M-3-1	10.46	10,000	9.00	2.40	0.50	4,100
	-3-2	8.09	"	7.00	2.30	0.50	3,100
	-3-3	5.15	"	4.00	2.30	0.25	4,400
	-3-4	3.13	"	2.00	2.30	0.25	3,500
	-3-5	0.86	"	1.00	2.30	0.25	2,100
	M-4-1	16.38	30,000	15.00	3.00	0.50	7,700
	-4-2	11.14	"	9.50	3.00	0.50	4,100
	-4-3	7.66	"	6.00	3.00	0.50	6,400
	-4-4	5.35	"	3.50	3.00	0.25	5,000
	-4-5	2.05	"	1.00	3.00	0.25	4,500
	M-4.1	1.83	10,000	2.00	2.90	0.25	4,750
	M-4.2	3.00	10,000	3.00	2.60	0.25	4,000
		1.02	"	1.00	2.6	0.25	3,750
South Port Said	M-5-1	9.25	40,000	9.50	1.90	0.25	2,400
	-5-2	7.96	"	8.00			5,100
	-5-3	5.25	"	4.50	2.00	0.25	4,900
	-5-4	2.65	"	2.00	3.00	0.50	3,950
	M-6-1	10.32	40,000	11.00	3.00	0.50	5,000
	-6-2	7.40	"	7.50	3.00	0.25	5,000
	-6-3	4.26	"	3.50	3.00	0.25	2,400
	-6-4	2.90		2.00			4,500
	-6-5	1.63	"	1.00	2.90	0.50	6,500

NOTE:Stripping thickness=0.10m

ARAB REPUBLIC OF EGYPT
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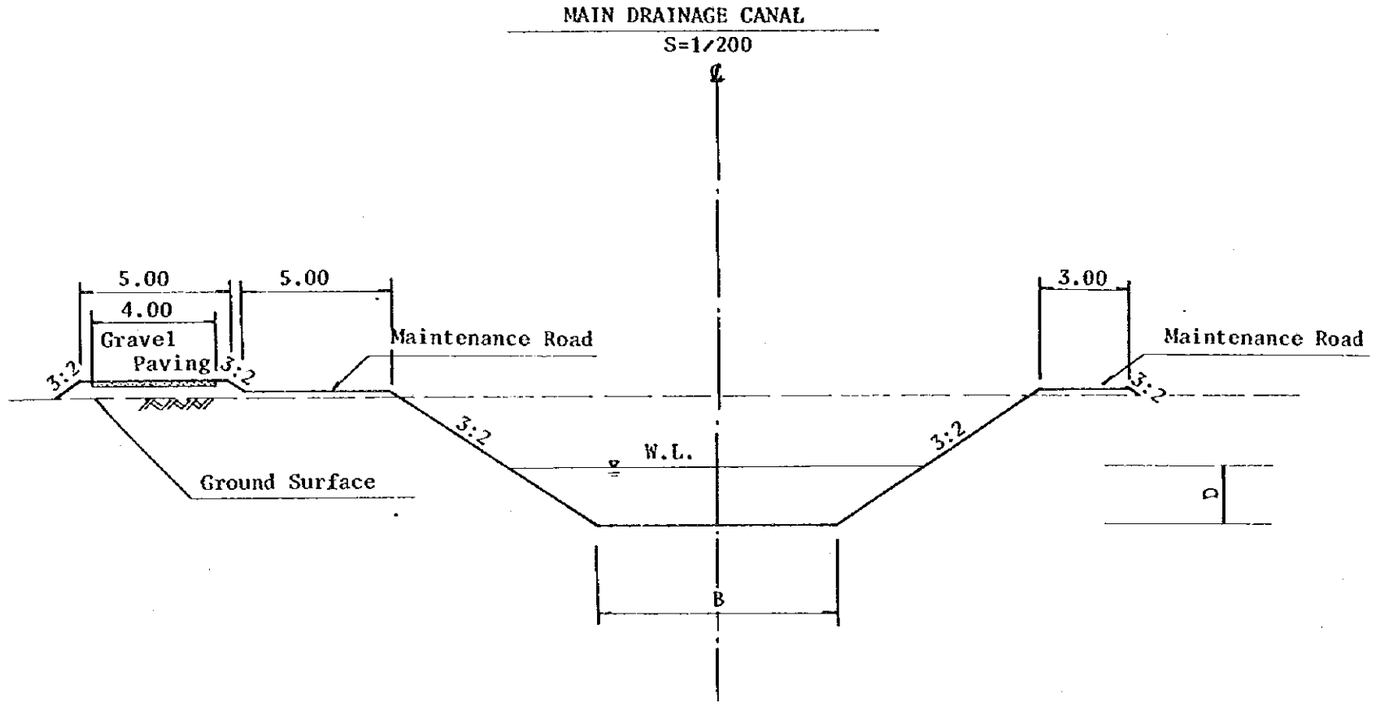
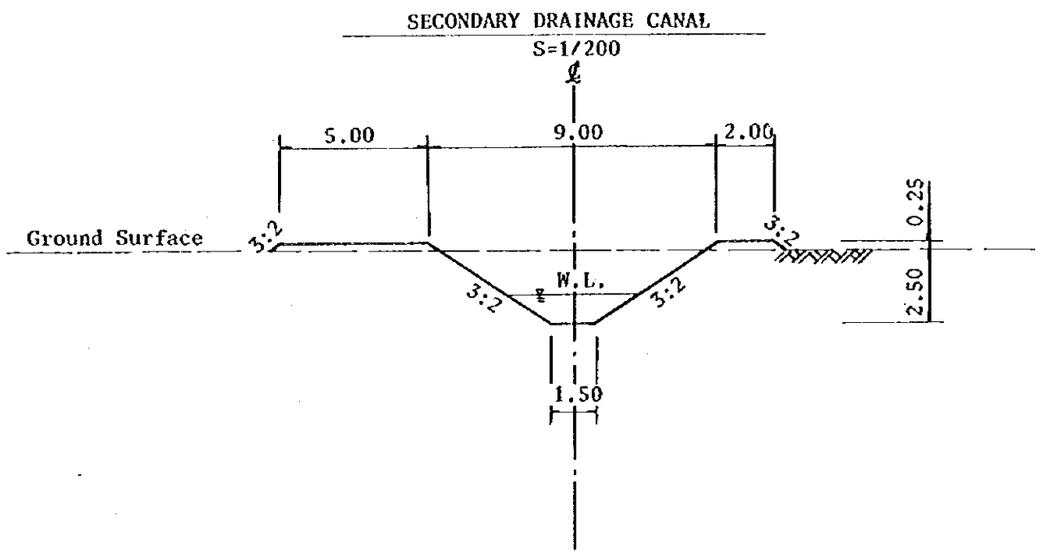
NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

TYPICAL SECTION OF IRRIGATION CANAL

DATE	1988, JUNE	DWG. NO	8

JAPAN INTERNATIONAL COOPERATION AGENCY





Dimensions of the Main Drainage Canals

Block	Name of Canal	Discharge (Q:m³/sec)	Slope (1/I)	Bottom Width (B:m)	Water Depth (D:m)	Length (L:m)
North Hussinia	D-1.1	8.19	15,000	8.00	1.88	8,500
	1.2	4.54	"	4.00	1.85	5,400
	1.3	2.89	"	2.00	1.84	5,600
	D-1-1	2.39	10,000	1.50	1.64	6,200
	D-1-2	1.91	10,000	1.50	1.48	6,100
	D-2.1	10.56	20,000	12.00	1.91	7,900
	2.2	7.10	"	8.00	1.88	4,100
	2.3	4.38	"	4.50	1.87	3,300
	2.4	2.15	"	1.50	1.84	5,800
	D-2-1	2.21	10,000	1.50	1.59	8,800
	D-2-2	1.83	10,000	1.50	1.45	6,200
	D-2-3	1.38	10,000	1.50	1.27	4,000
	D-3.1	3.27	20,000	3.00	1.86	6,000
	3.2	1.33	"	1.50	1.47	6,200
South Port Said	D-4.1	13.00	20,000	15.00	1.91	5,000
	4.2	6.97	10,000	5.00	1.90	2,500
	4.3	5.16	"	4.00	1.78	2,500
	4.4	3.40	"	2.50	1.69	2,500
	4.5	1.72	"	1.50	1.41	3,200
	D-4-1.1	4.32	20,000	5.00	0.37	5,500
	4-1.2	1.91	"	1.50	0.27	4,100

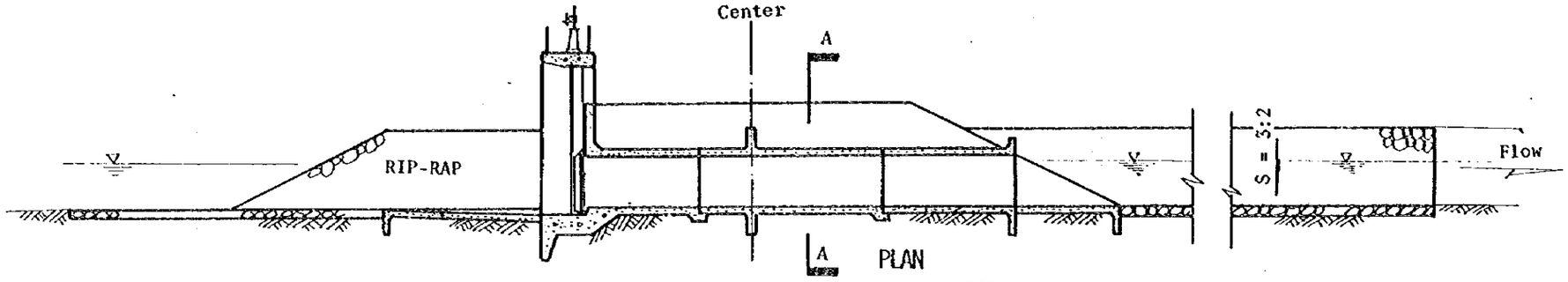
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

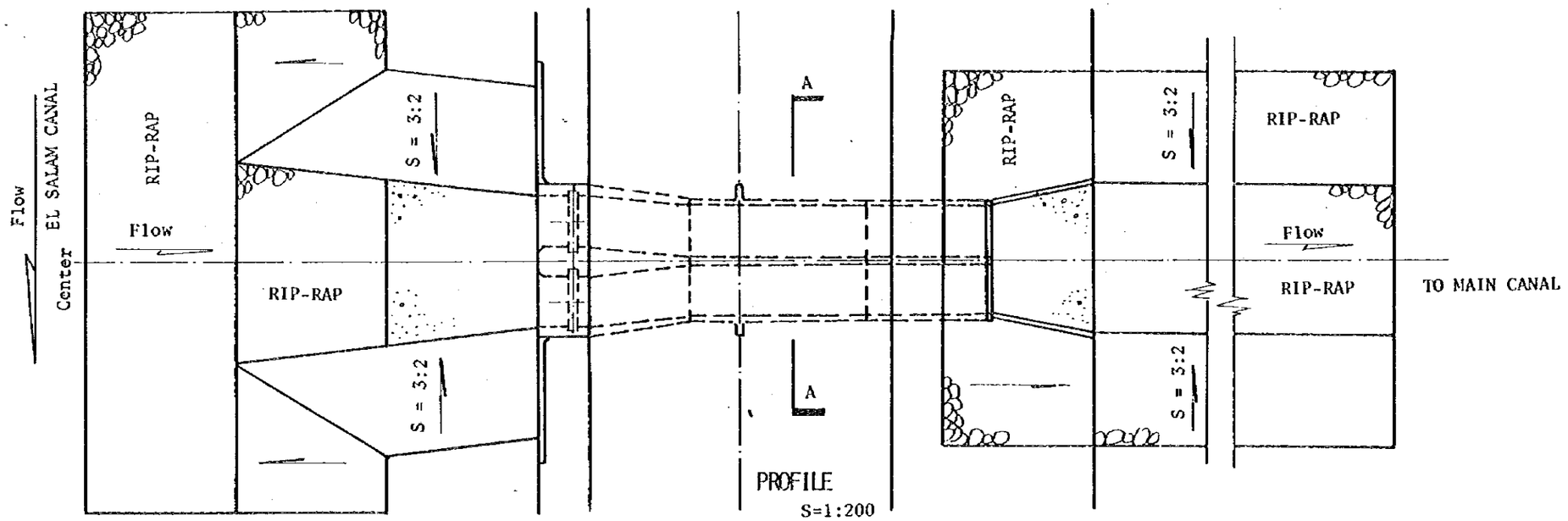
NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

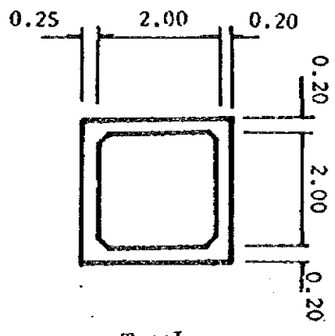
TYPICAL SECTION OF DRAINAGE CANAL

DATE	1981, JUNE	DWG. NO	9

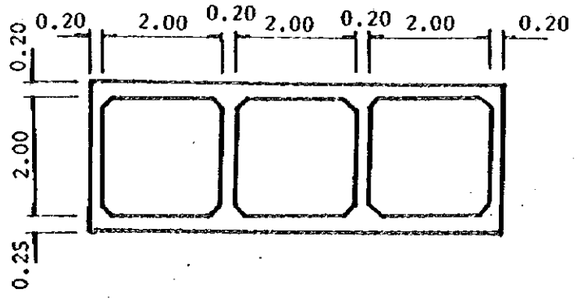
JAPAN INTERNATIONAL COOPERATION AGENCY



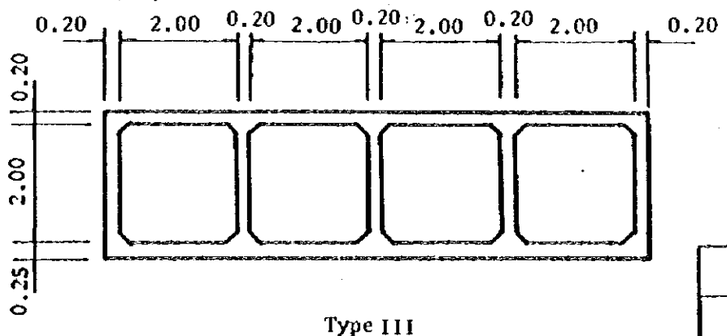




TypeI

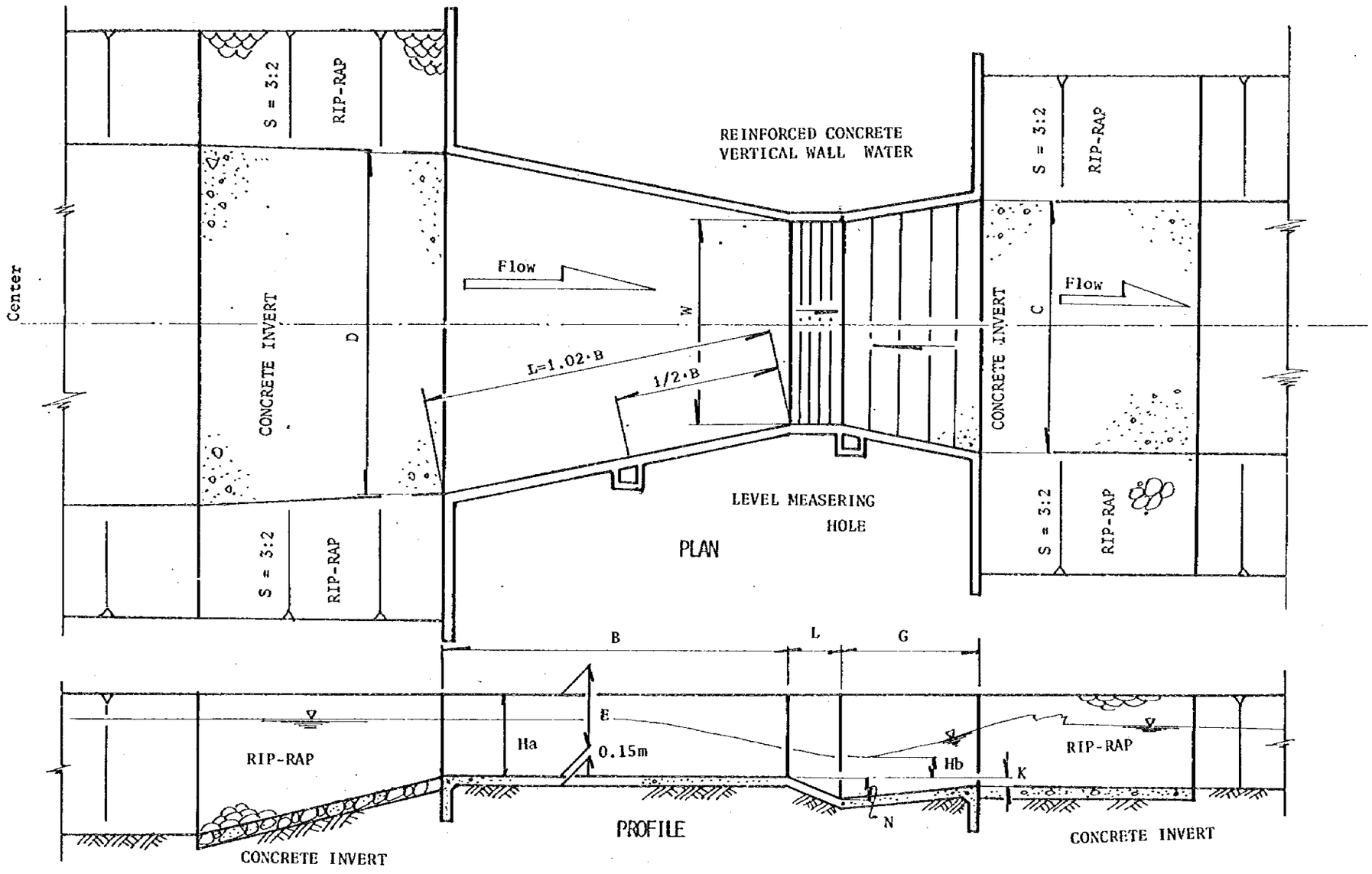


TypeII



Type III

ARAB REPUBLIC OF EGYPT MINISTRY OF LAND RECLAMATION			
NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT			
INTAKE OF MAIN CANAL			
DATE	1988, JUNE	DWG. NO	10
JAPAN INTERNATIONAL COOPERATION AGENCY			



DIMENSION TABLE OF PARSHALL FLUME

Unit: Meter

TYPE	W	B	C	D	E	G	K	F	N	Min. Discharge	Max. Discharge	Ha	Hb/Ha	Discharge formula
I	3.048	4.267	3.657	4.756	1.219	1.829	0.152	0.914	0.343	0.17	5.70	1.829	0.80	Q=8.86 Ha
II	4.572	7.620	5.588	7.620	1.829	3.048	0.229	1.219	0.457	0.23	25.04	2.337	0.80	Q=10.96 Ha
III	6.096	7.620	7.315	9.144	2.134	3.658	0.305	1.829	0.686	0.31	37.97	2.845	0.80	Q=14.45 Ha

ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

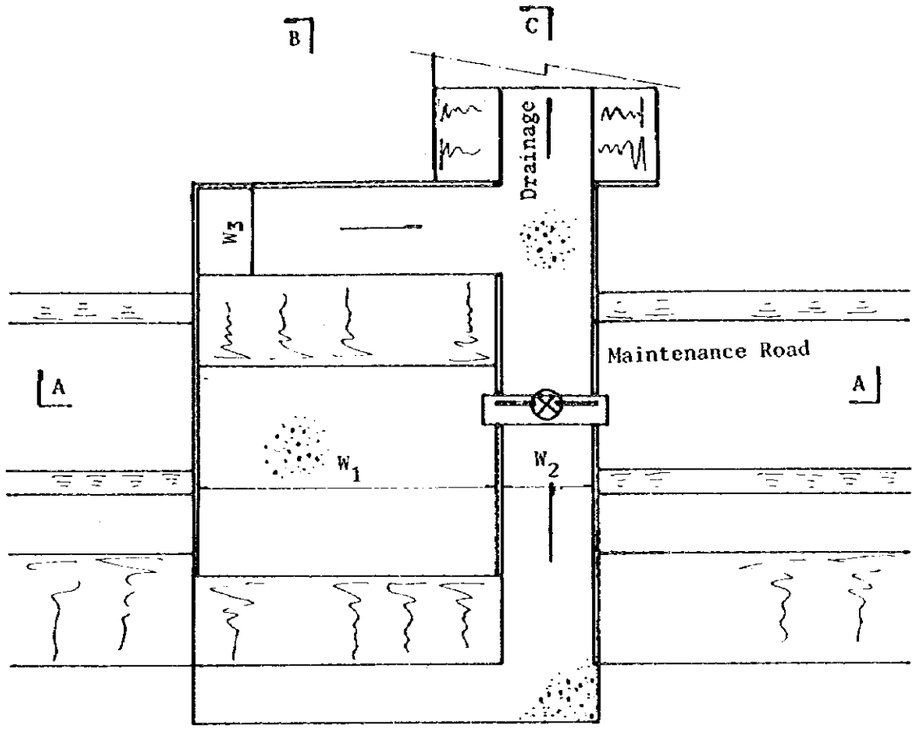
NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PARSHALL FLUME OF MAIN CANAL

DATE | ISSUE, JUNE | DWG. NO | 11

JAPAN INTERNATIONAL COOPERATION AGENCY

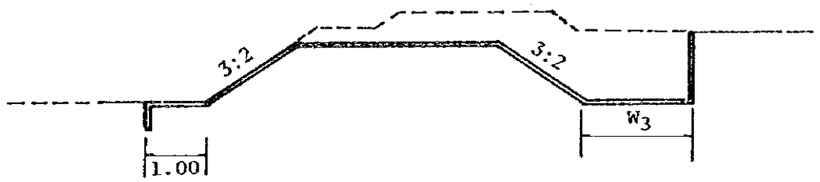
Type	W_1	W_2	W_3	H	
I	5.00	1.50	2.50	2.50	NH-3
II	3.00	1.50	1.50	2.50	SP-1, SP-2



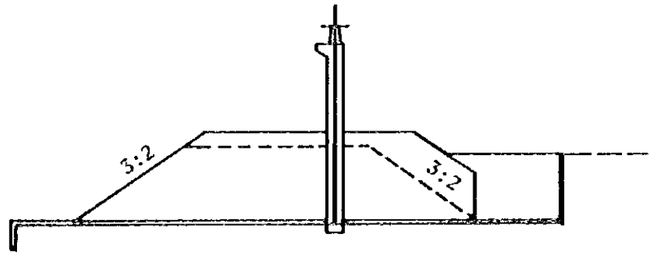
Main Canal

B C

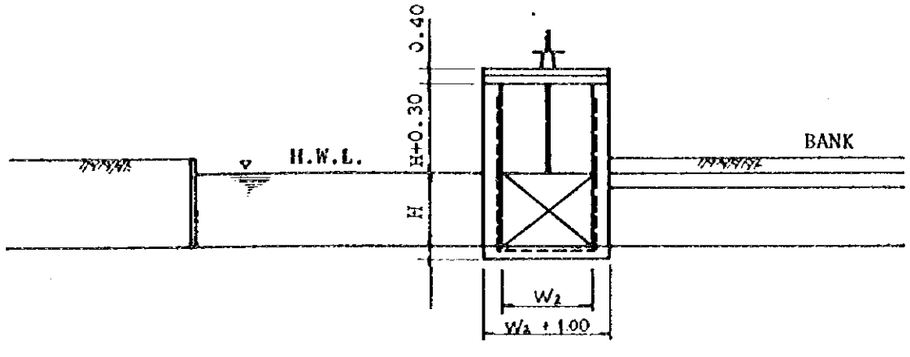
PLAN



B-B



C-C



A-A

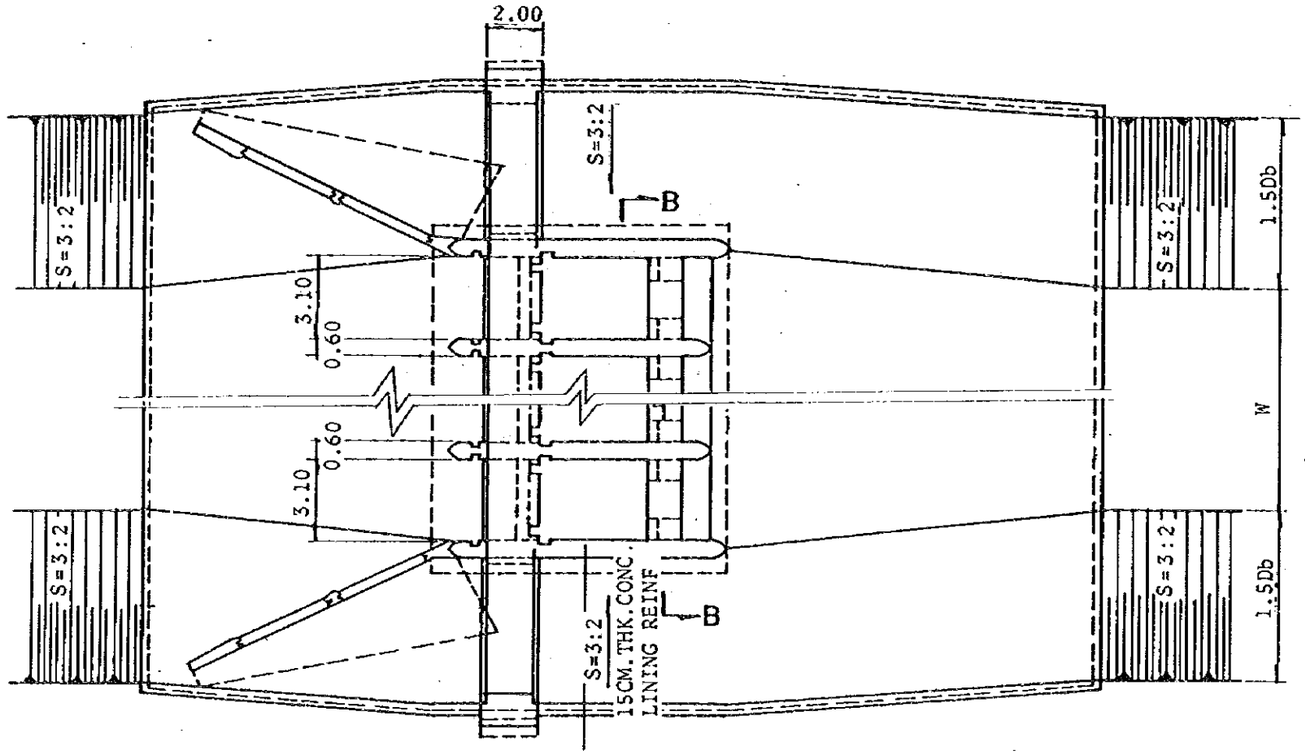
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

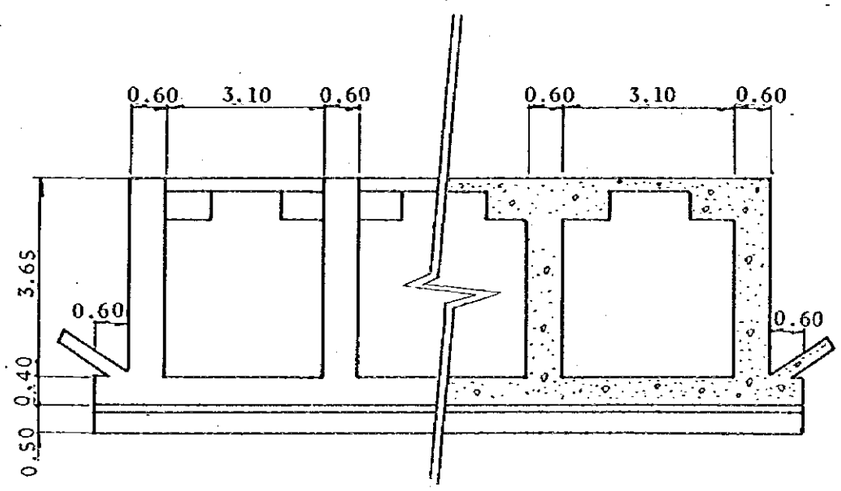
SPILLWAY OF MAIN CANAL

DATE 1984, JUNE | DWG. NO 12

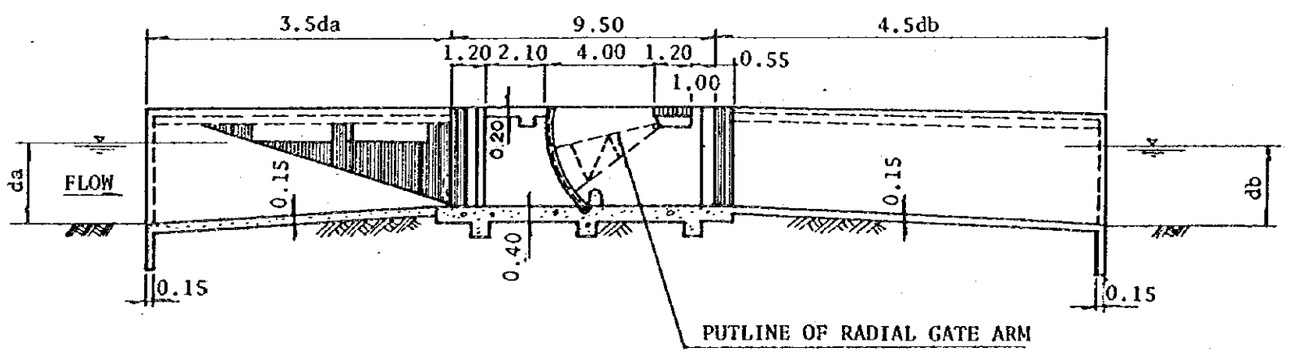
JAPAN INTERNATIONAL COOPERATION AGENCY



P L A N



SECTION B-B



SECTION A-A

TYPE	GATE NOs.	W
I	1 ps.	2.0
II	2 ps.	3.5
		4.5
III	3 ps.	9.5

ALL DIMENSIONS ARE SHOWN IN METER.

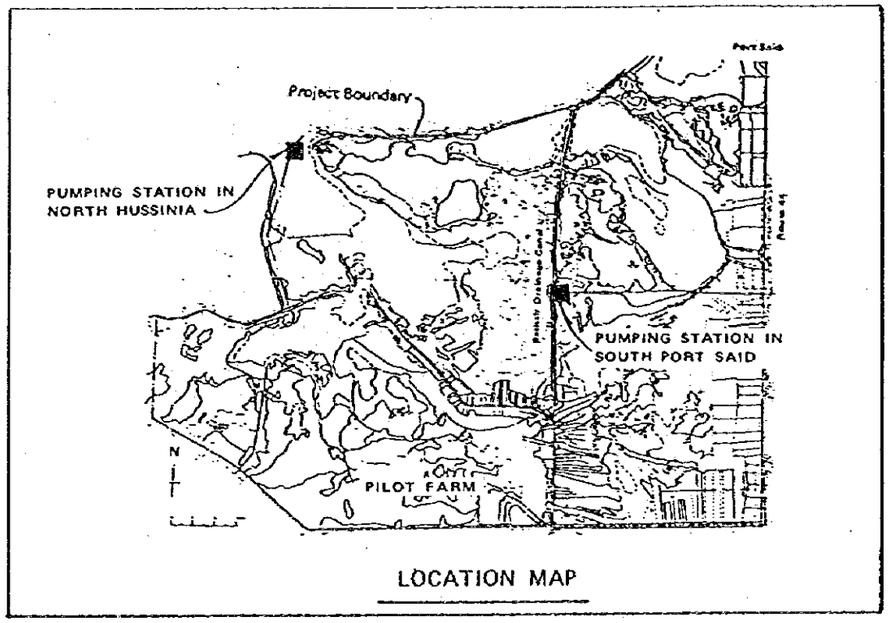
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

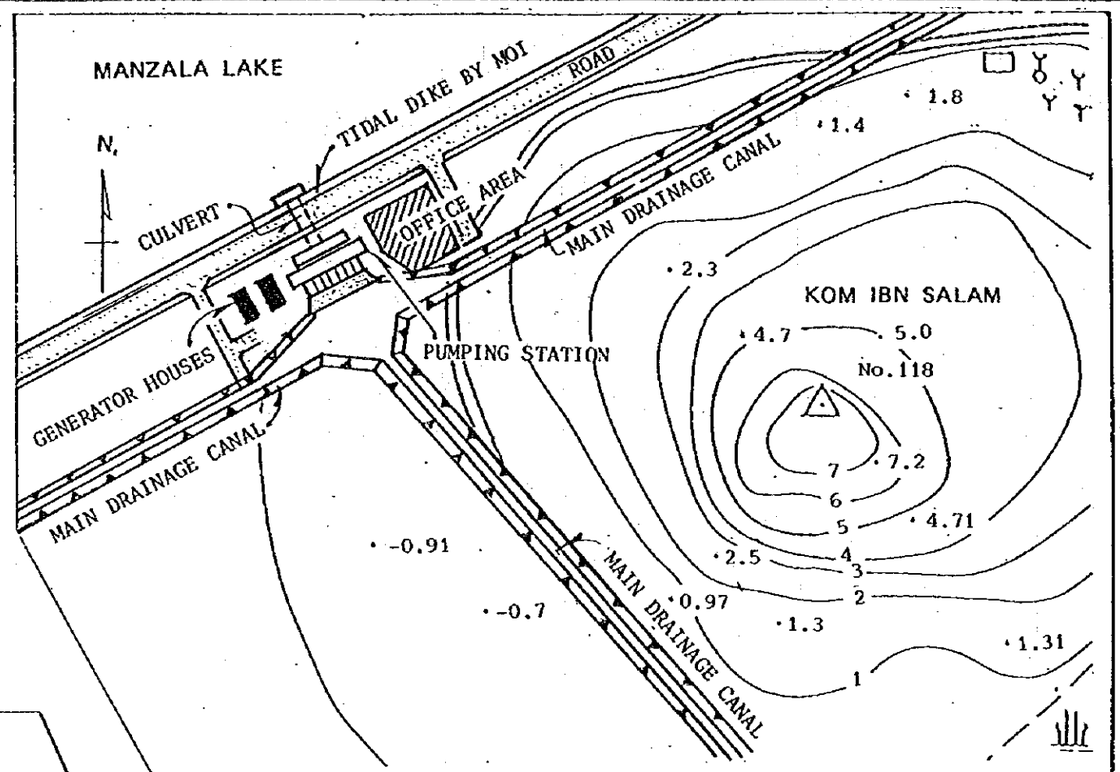
CHECK GATE OF MAIN CANAL

DATE	1988, JUNE	DWG. NO	13

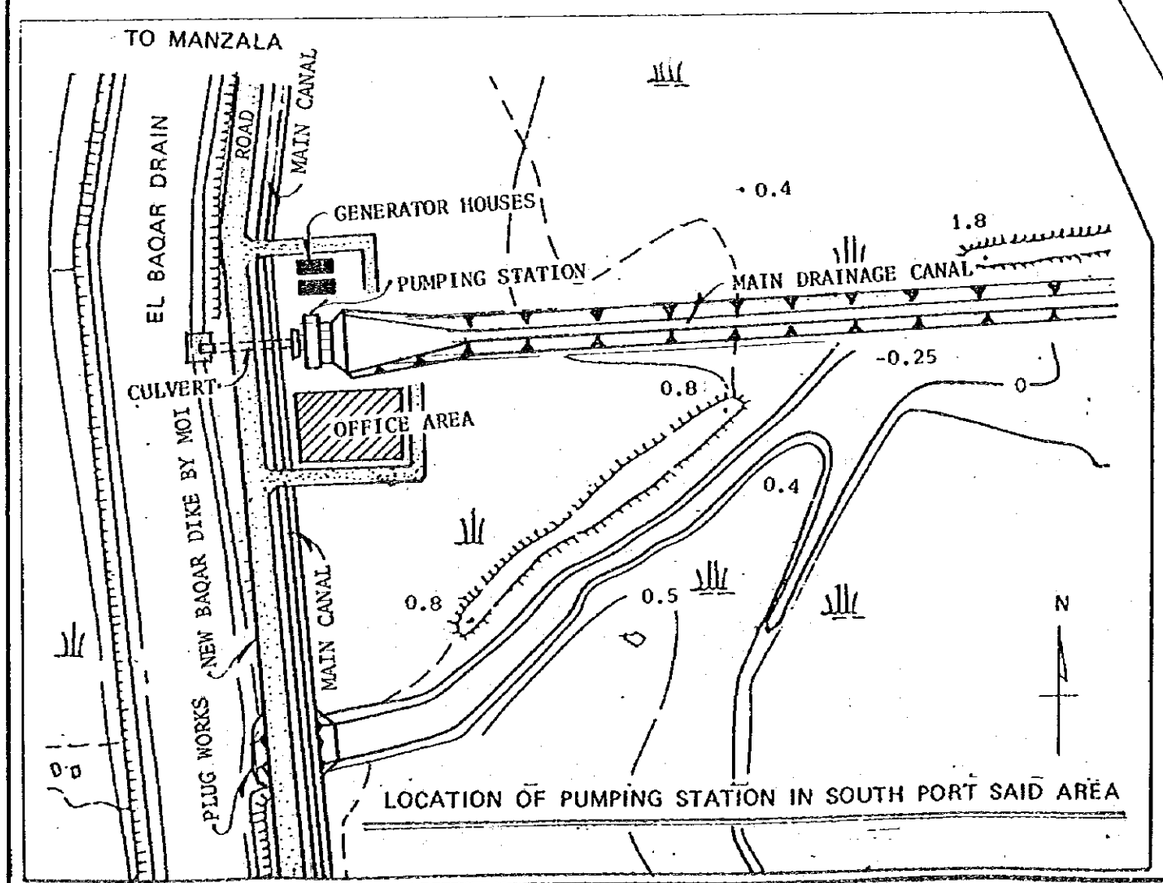
JAPAN INTERNATIONAL COOPERATION AGENCY



LOCATION MAP



LOCATION OF PUMPING STATION IN NORTH HUSSINIA AREA



LOCATION OF PUMPING STATION IN SOUTH PORT SAID AREA

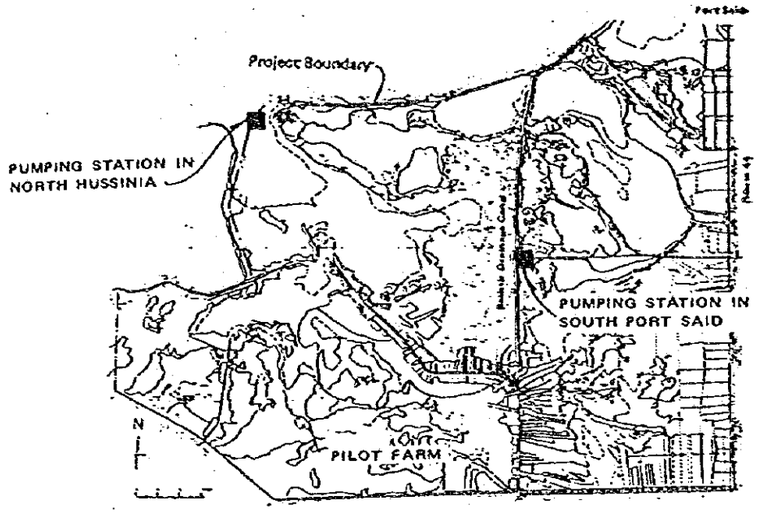
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

LOCATION OF PUMPING STATIONS

DATE	1984, JUNE	DRG. NO	14

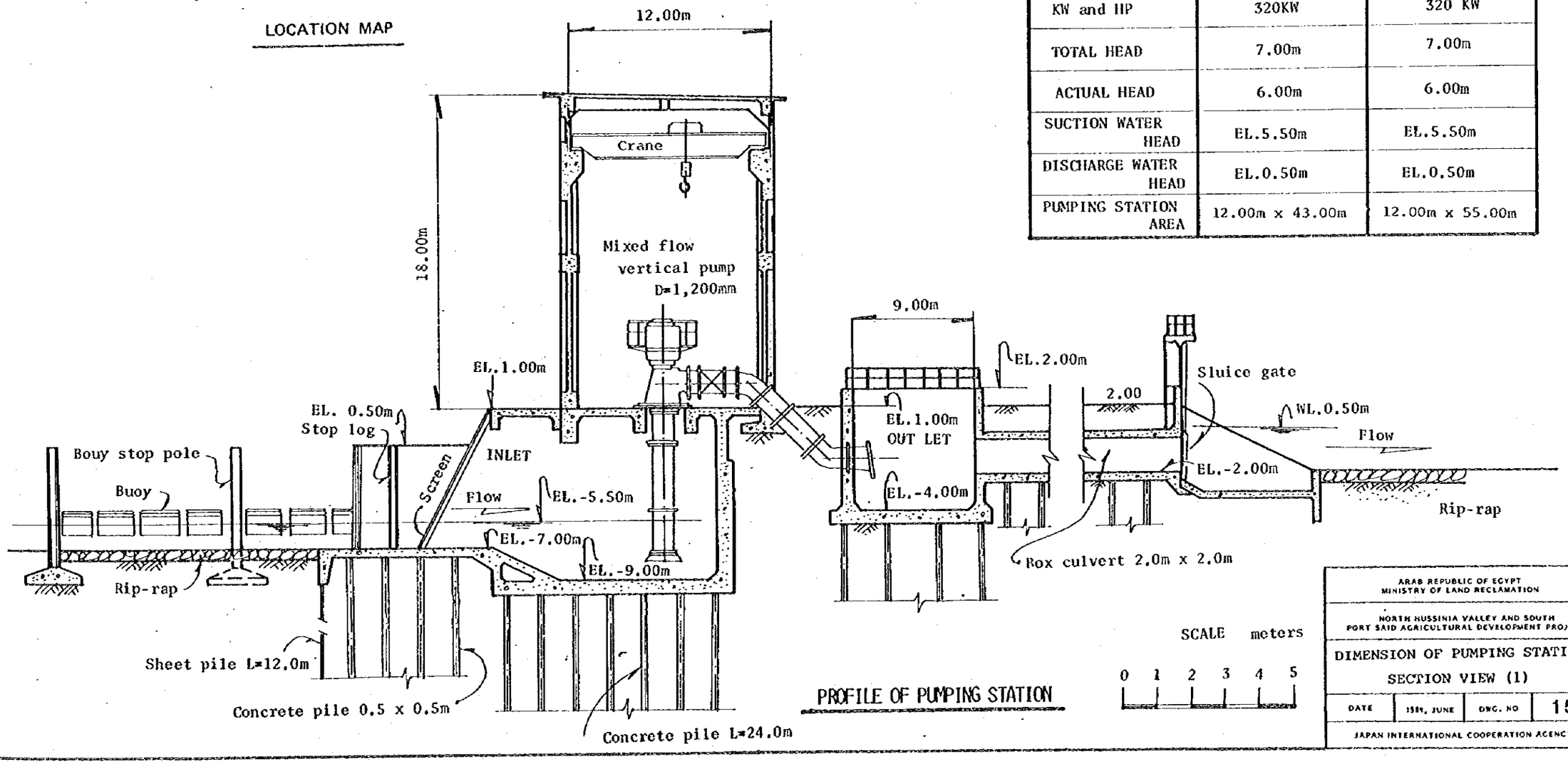
JAPAN INTERNATIONAL COOPERATION AGENCY



LOCATION MAP

DIMENSION TABLE OF PUMPING STATION

Station name / Items	SOUTH PORT SAID PUMPING STATION	NORTH HUSSINIA PUMPING STATION
DISCHARGE AREA	41,000 feddan	69,000 feddan
UNIT DISCHARGE CAPACITY	27.5 cum/day/fed.	27.5 cum/day/fed.
TOTAL DISCHARGE CAPACITY	783 m^3/min.	1,318 m^3/min.
TYPE OF PUMP	MIXED FLOW VERTICAL PUMP	MIXED FLOW VERTICAL PUMP
DIAMETER & UNIT	1,200mm x 5	1,200mm x 8
KW and HP	320KW	320 KW
TOTAL HEAD	7.00m	7.00m
ACTUAL HEAD	6.00m	6.00m
SUCTION WATER HEAD	EL.5.50m	EL.5.50m
DISCHARGE WATER HEAD	EL.0.50m	EL.0.50m
PUMPING STATION AREA	12.00m x 43.00m	12.00m x 55.00m



PROFILE OF PUMPING STATION

SCALE meters

0 1 2 3 4 5

ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

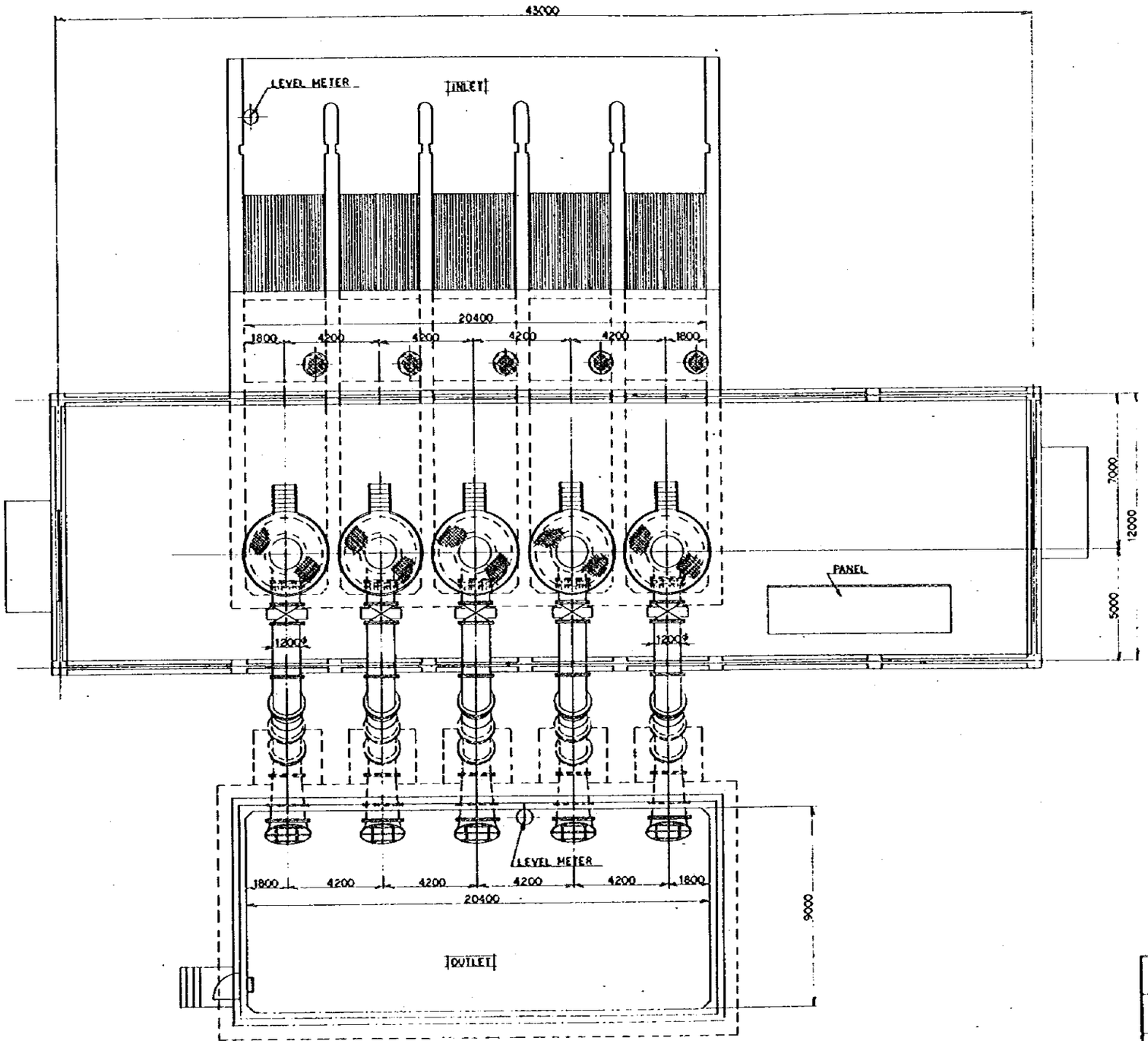
NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

DIMENSION OF PUMPING STATIONS
SECTION VIEW (1)

DATE	1981, JUNE	DWG. NO	15

JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN S=1/100



ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

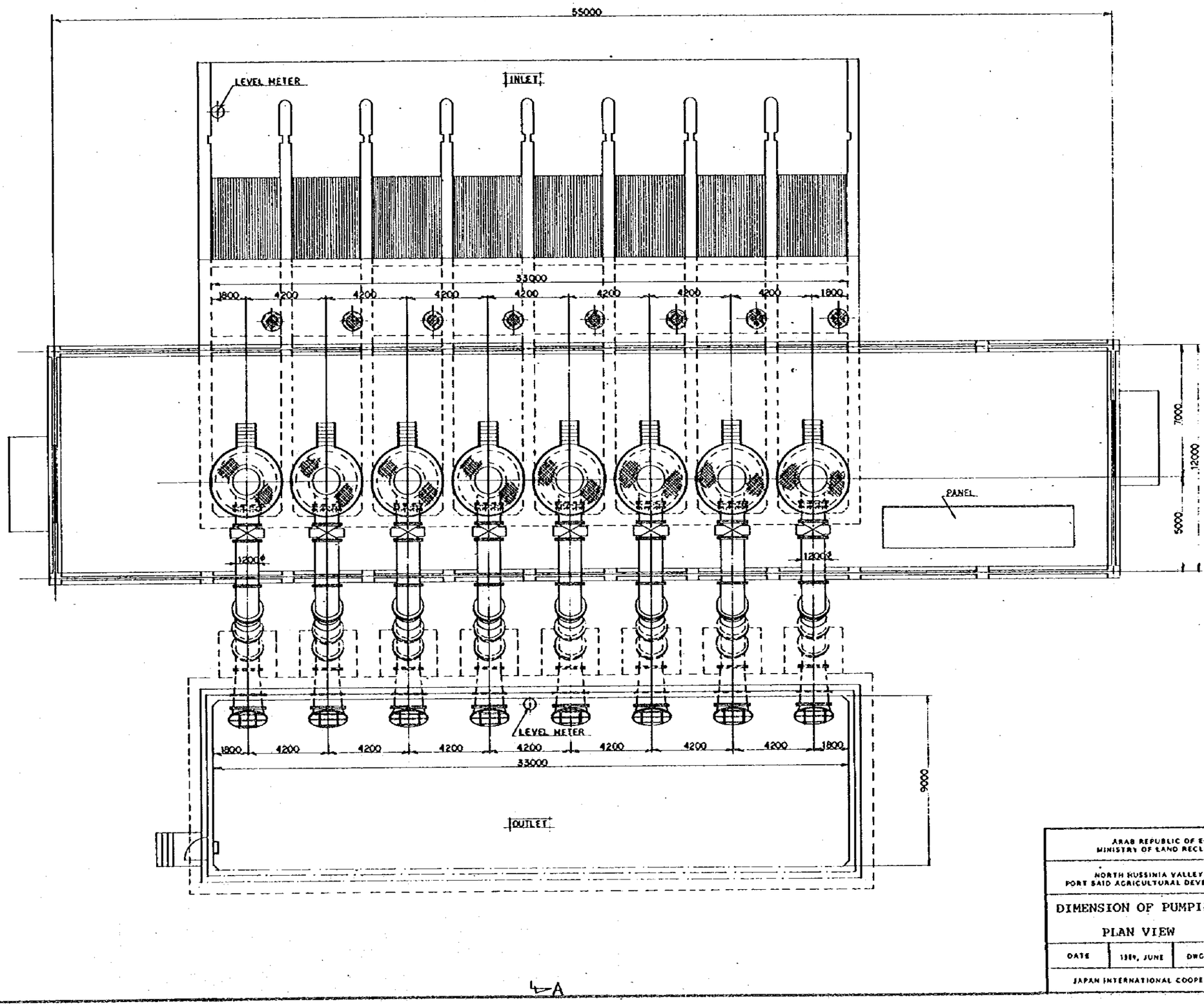
DIMENSION OF PUMPING STATIONS

PLAN VIEW (2)

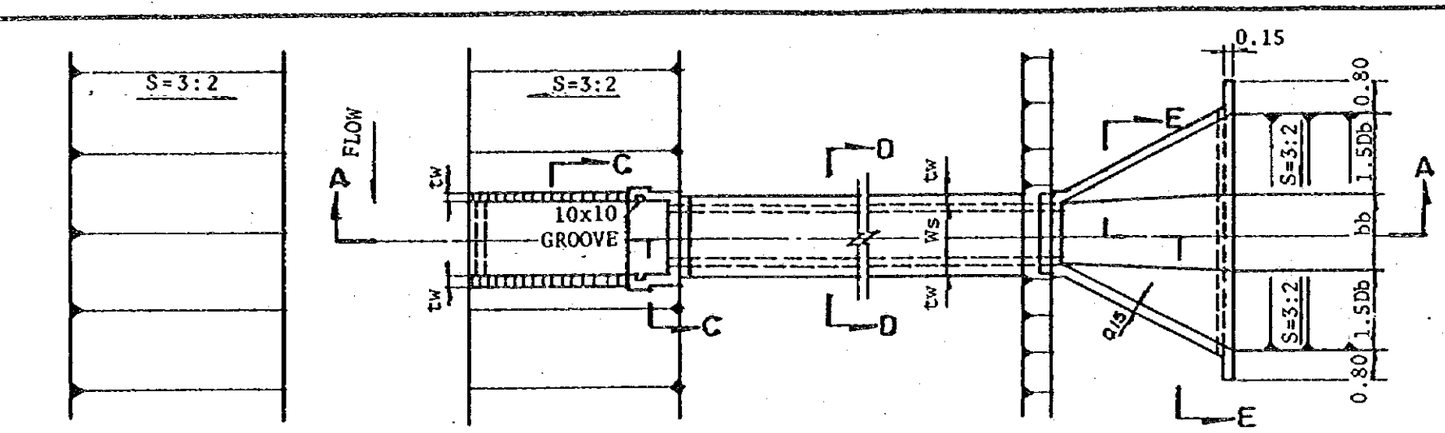
DATE	1986, JUNE	DRG. NO	16

JAPAN INTERNATIONAL COOPERATION AGENCY

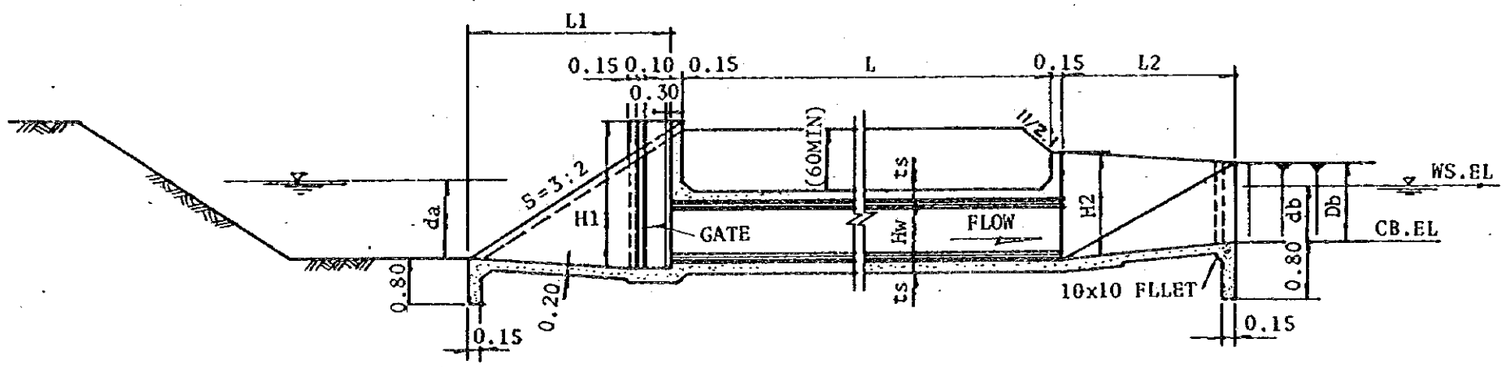
PLAN S. = 1/100



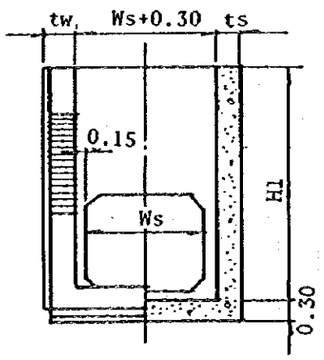
ARAB REPUBLIC OF EGYPT MINISTRY OF LAND RECLAMATION	
NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT	
DIMENSION OF PUMPING STATIONS PLAN VIEW (3)	
DATE	1989, JUNE
DWG. NO	17
JAPAN INTERNATIONAL COOPERATION AGENCY	



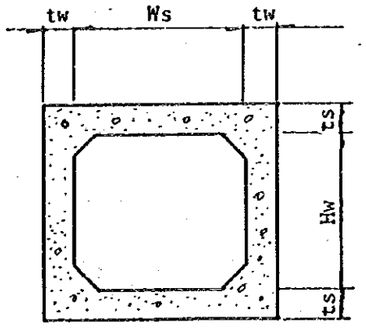
PLAN



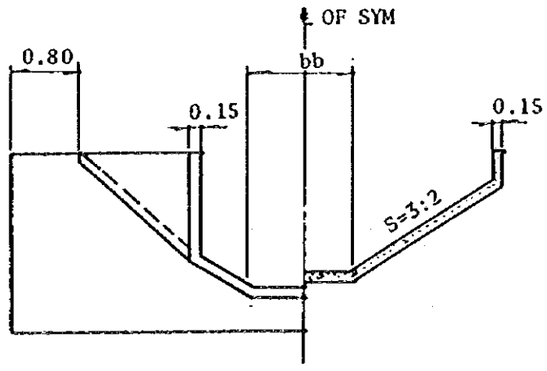
SECTION A-A



SECTION C-C



SECTION D-D



SECTION E-E

TYPE	Ws	Hw	tw	ts	H1	H2	L	L1	L2	da	db	Db	bb	REMARKS
A 5	1.50	1.50	0.20	0.20	2.50	2.20	9.00	3.75	5.40	2.50	1.20	1.70	4.60	
A 8	2.00	2.00	0.25	0.25	3.00	2.75	9.00	4.50	7.20	2.00	1.60	2.10	6.00	

ALL DIMENSIONS ARE SHOWN IN METER.

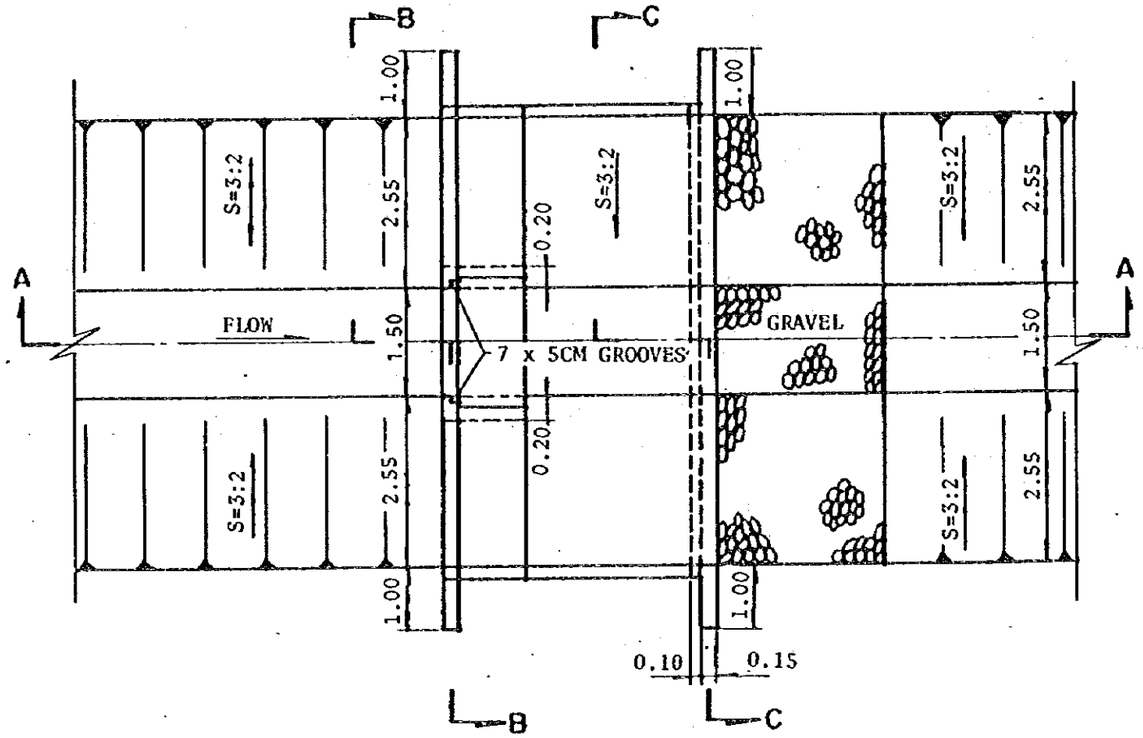
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

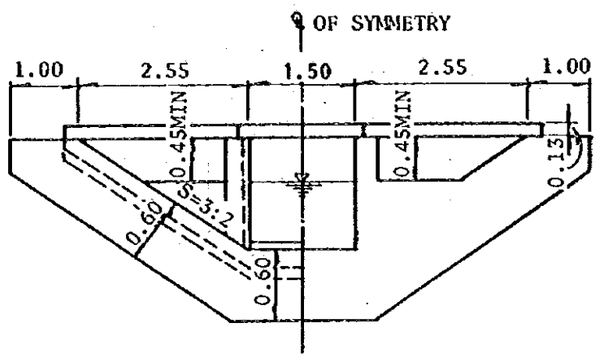
INTAKE OF SECONDARY CANAL

DATE: 1981, JUNE | DRG. NO: 18

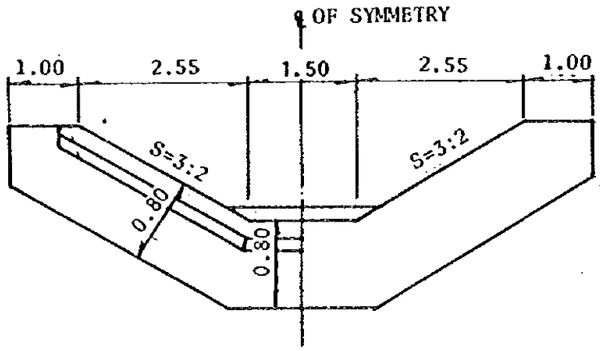
JAPAN INTERNATIONAL COOPERATION AGENCY



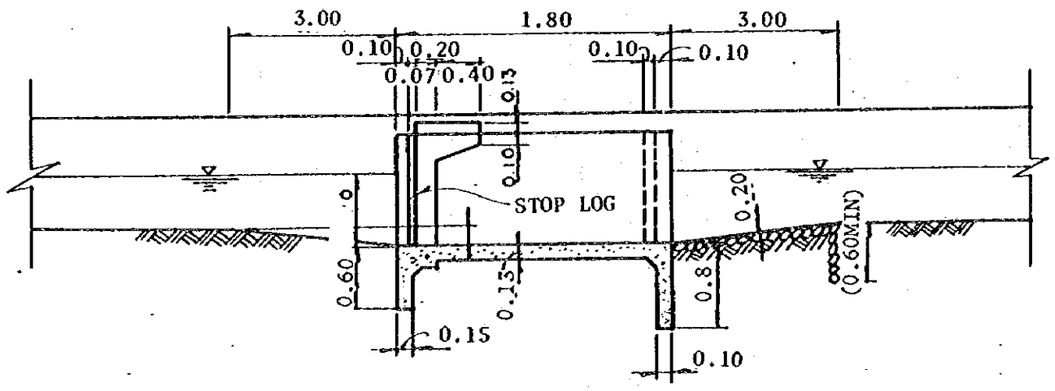
P L A N



SECTION B-B



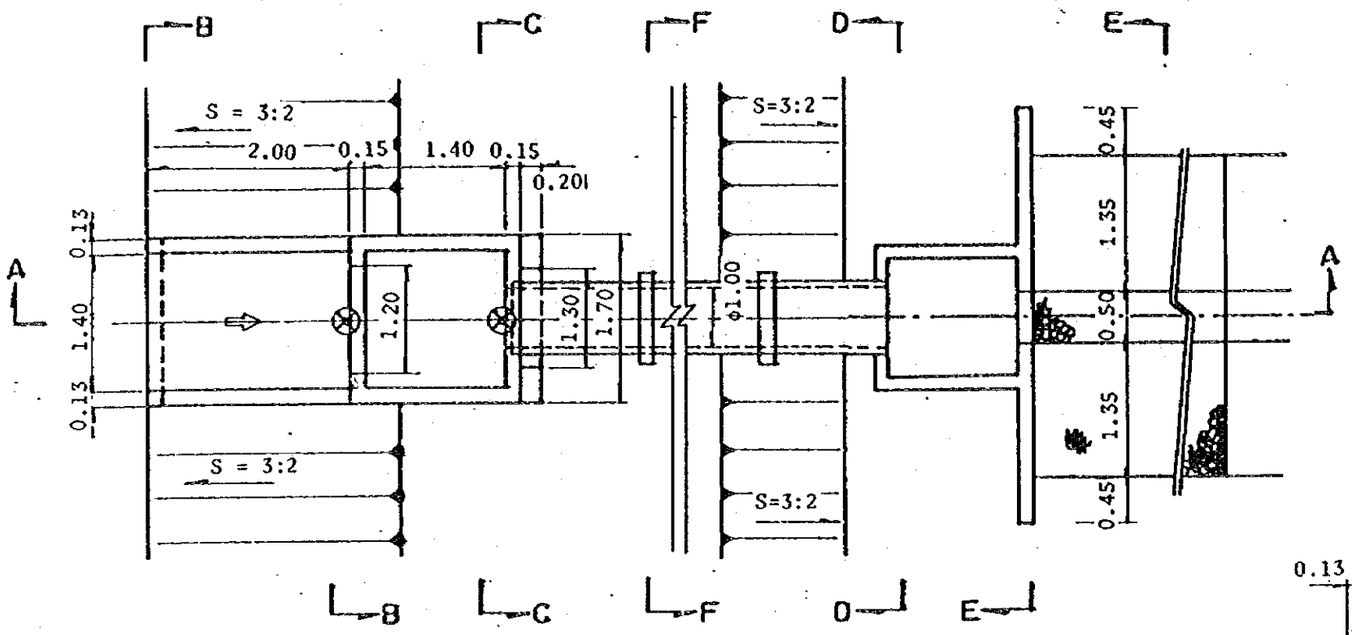
SECTION C-C



SECTION A-A

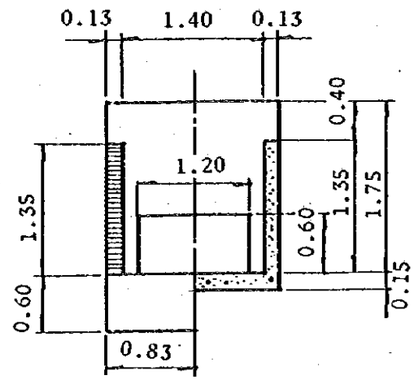
ALL DIMENSIONS ARE SHOWN IN METER.

ARAB REPUBLIC OF EGYPT MINISTRY OF LAND RECLAMATION			
NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT			
CHECK GATE OF SECONDARY CANAL			
DATE	1986, JUNE	DRG. NO	19
JAPAN INTERNATIONAL COOPERATION AGENCY			



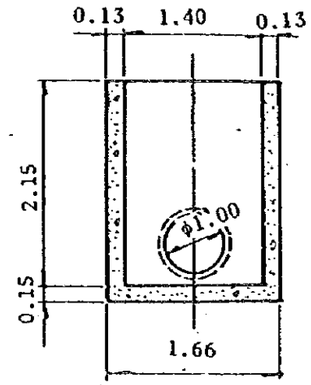
PLAN

S=1:60

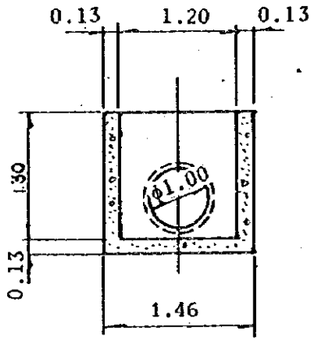


SECTION A-A

S=1:60

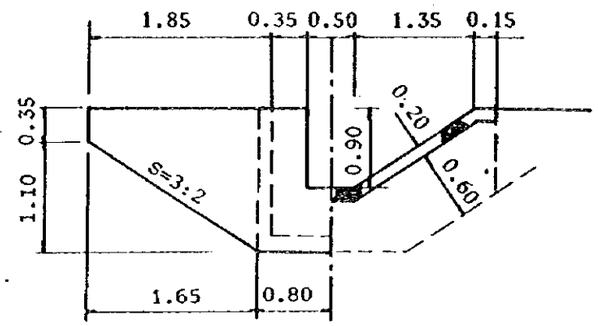


SECTION B-B



SECTION D-D

S=1:60



SECTION E-E

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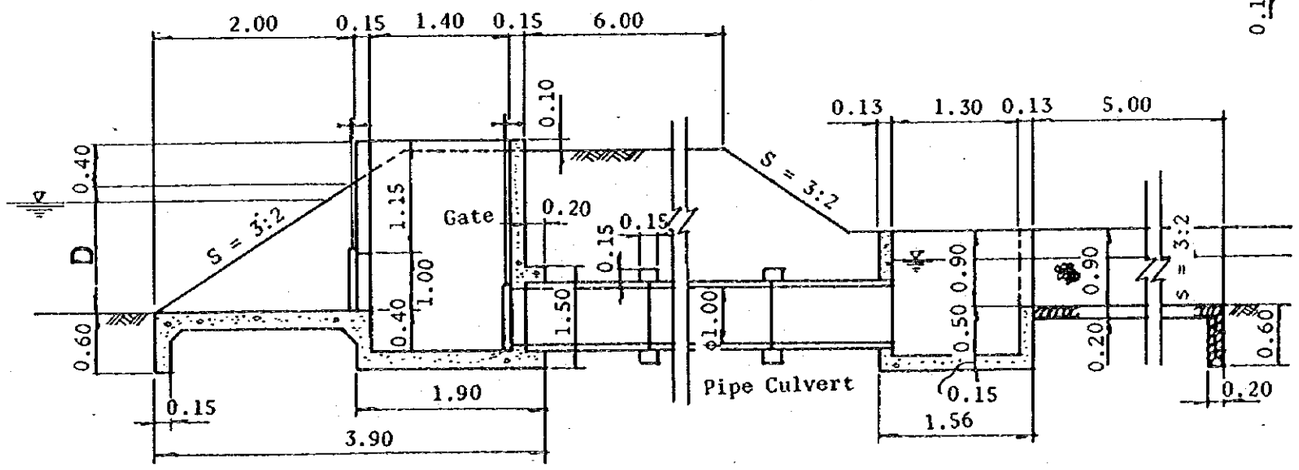
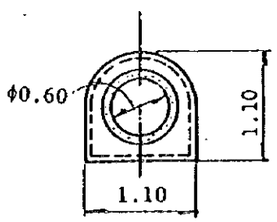


SECTION A-A

S=1:60



SECTION F-F

S=1:60

ALL DIMENSIONS ARE SHOWN IN METER.

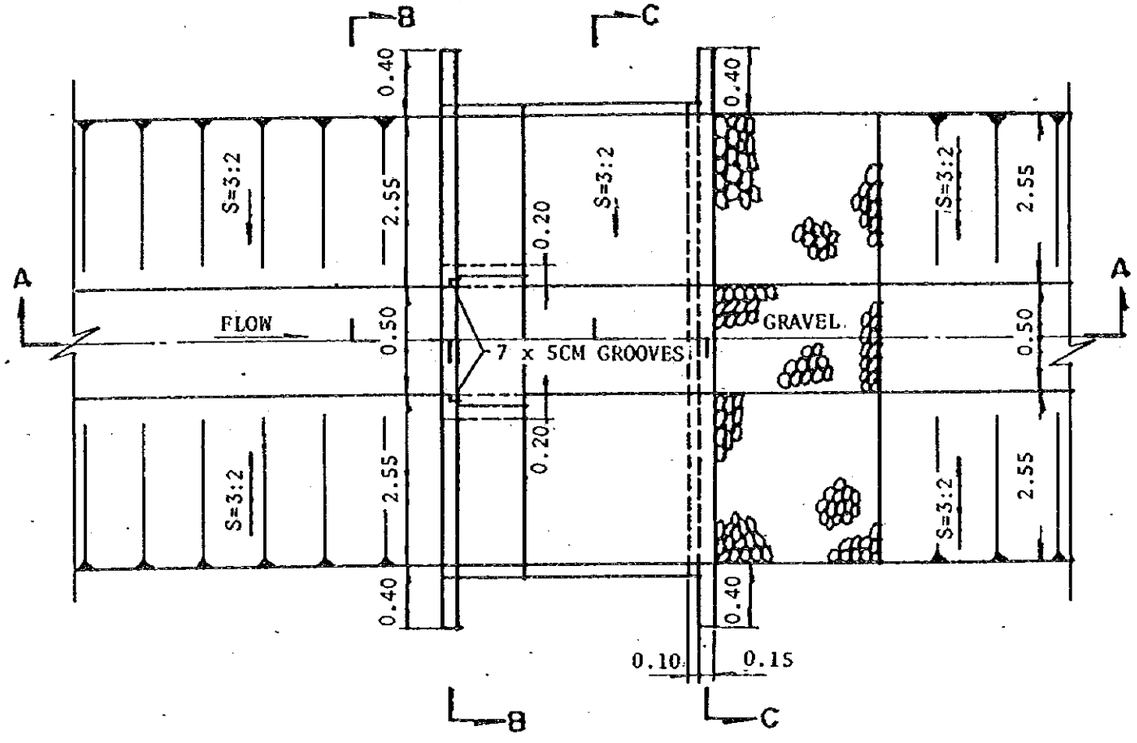
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

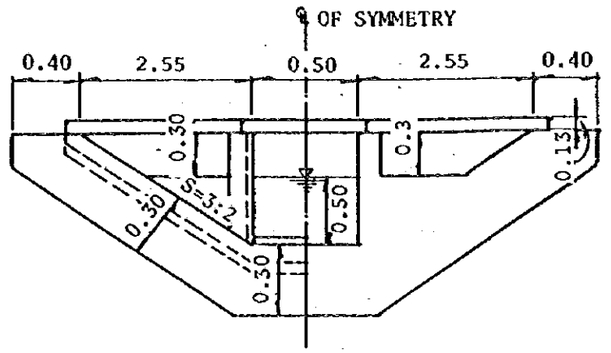
TURN-OUT OF TERTIARY CANAL

DATE	1986, JUNE	DWG. NO	20

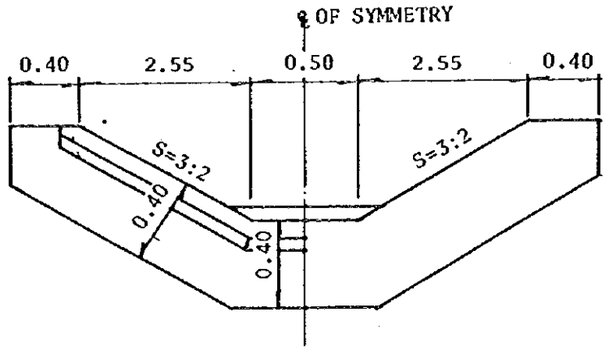
JAPAN INTERNATIONAL COOPERATION AGENCY



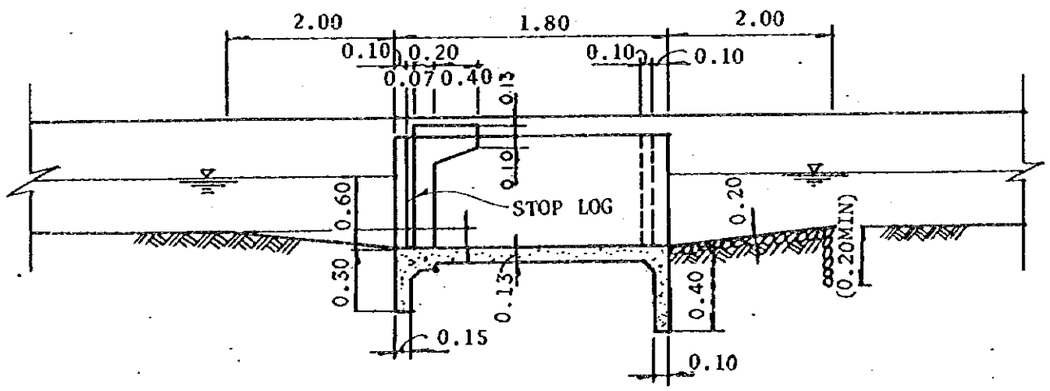
P L A N



SECTION B-B



SECTION C-C

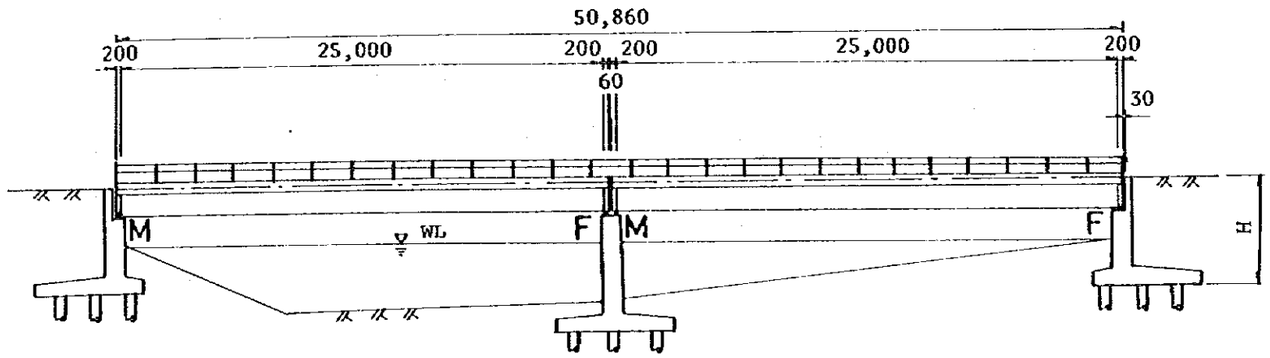


SECTION A-A

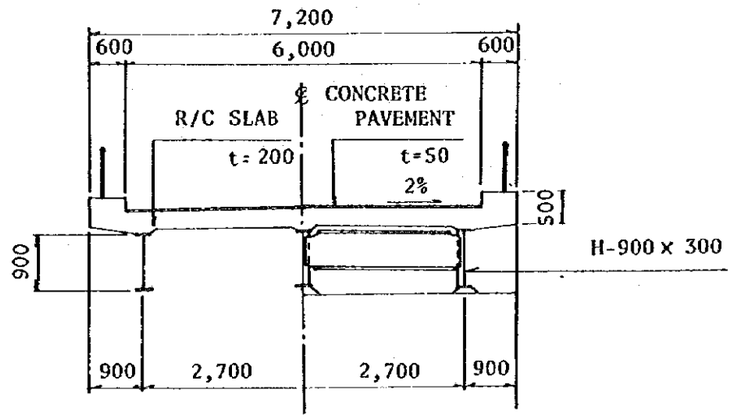
ALL DIMENSIONS ARE SHOWN IN METER.

ARAB REPUBLIC OF EGYPT MINISTRY OF LAND RECLAMATION			
NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT			
CHECK GATE OF TERTIARY CANAL			
DATE	1988, JUNE	DWG. NO	21
JAPAN INTERNATIONAL COOPERATION AGENCY			

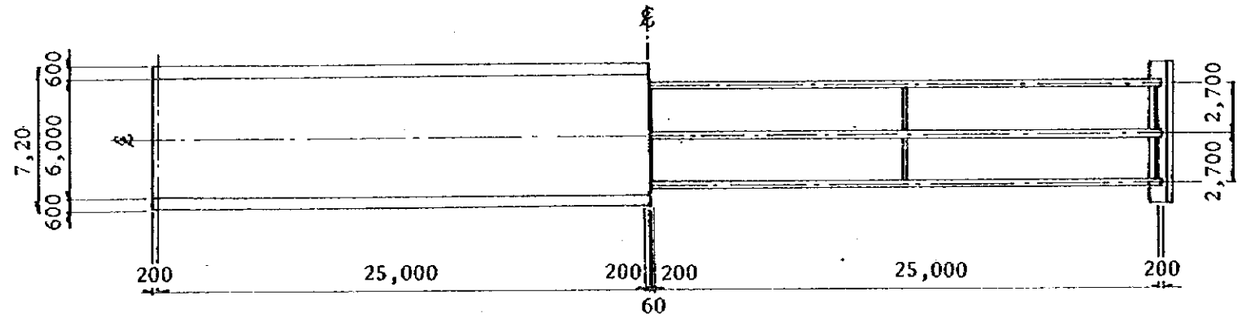
PROFILE s=1:300



CROSS SECTION s=1:100

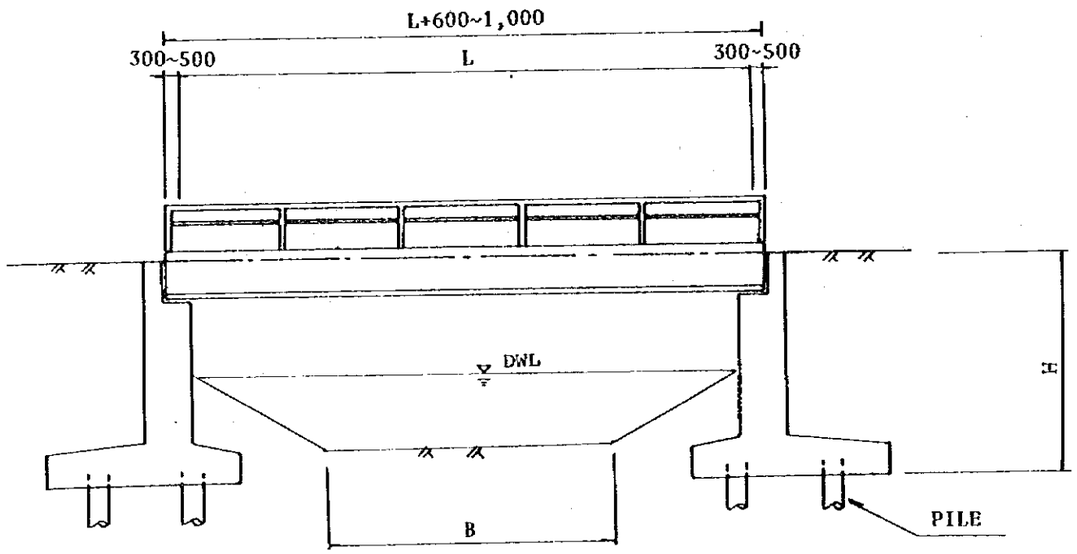


PLAN s=1:300

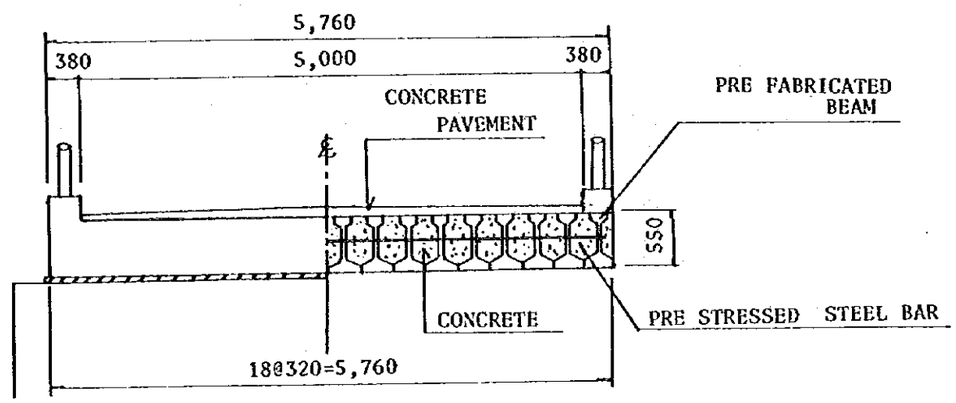


ARAB REPUBLIC OF EGYPT MINISTRY OF LAND RECLAMATION	
NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT	
BRIDGE OF BAHR EL BAQAR	
DATE	1984, JUNE
DWG. NO	22
JAPAN INTERNATIONAL COOPERATION AGENCY	

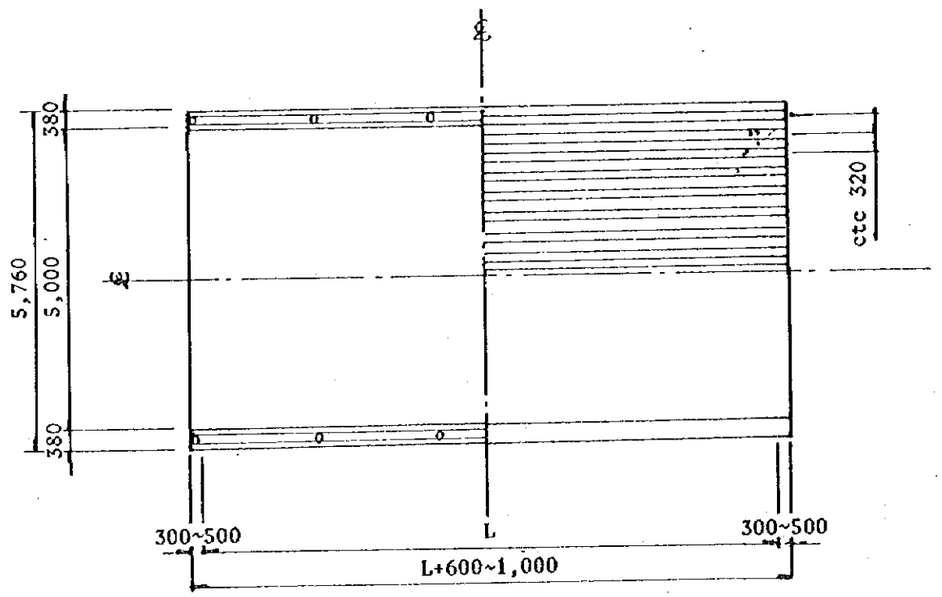
PROFILE s=1:100



CROSS SECTION s=1:60



PLAN s=1:100



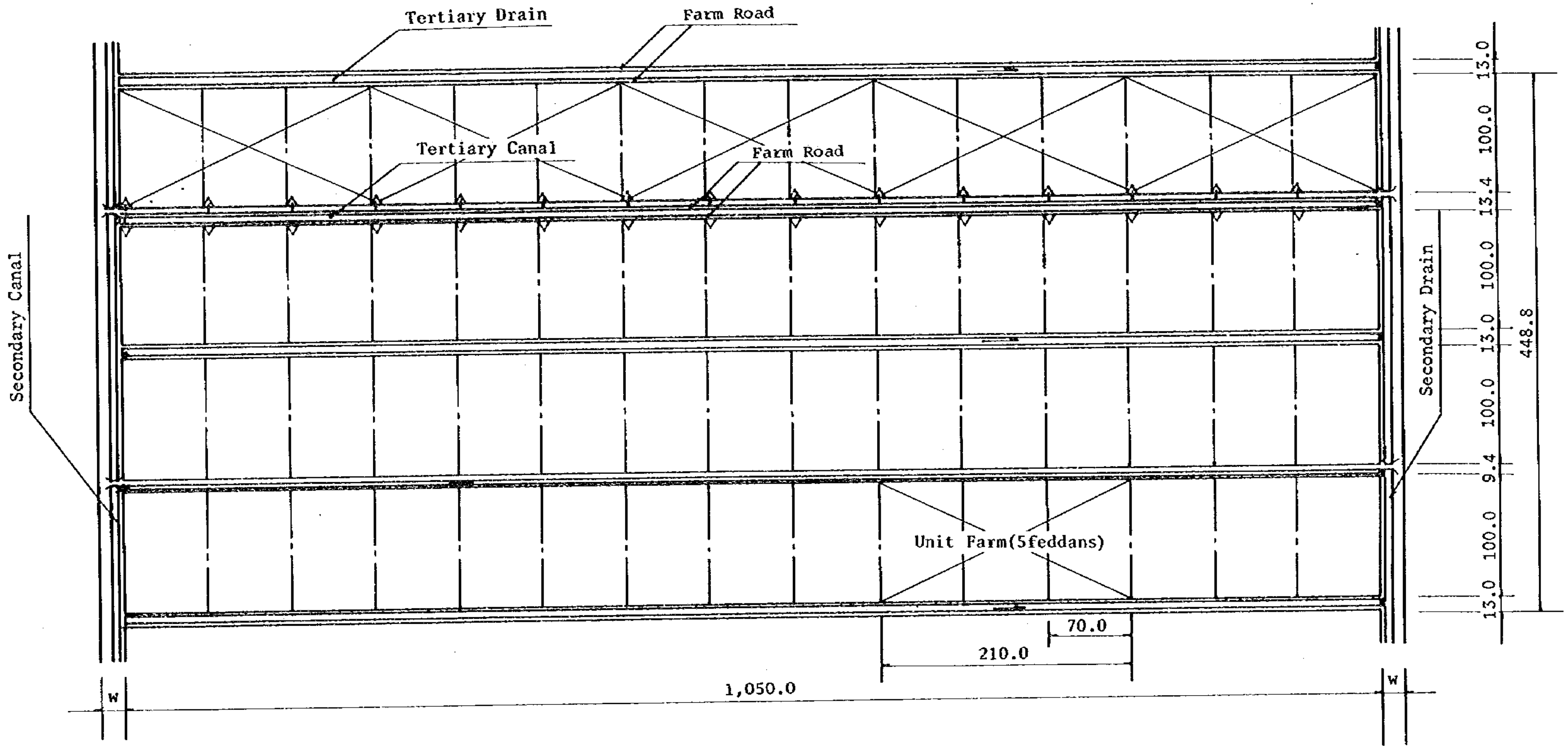
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH
PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

BRIDGE OF MAIN/DRAINAGE CANAL

DATE	1986, JUNE	DWG. NO	23

JAPAN INTERNATIONAL COOPERATION AGENCY



Unit:100fed

Simbole	Structure	Total Amount
	Intake from Secondary Canal	2ps
	On-farm Intake Type (I)	15
	〃 Type (II)	15
	Cross Culvert Type(I)	4
	〃 (II)	4

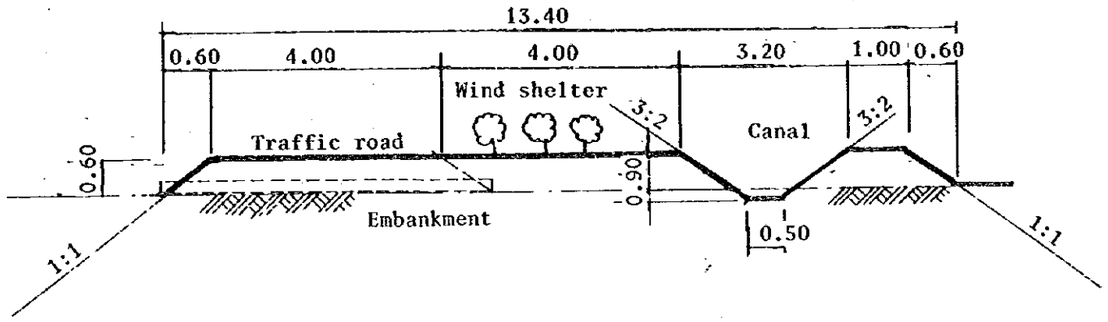
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

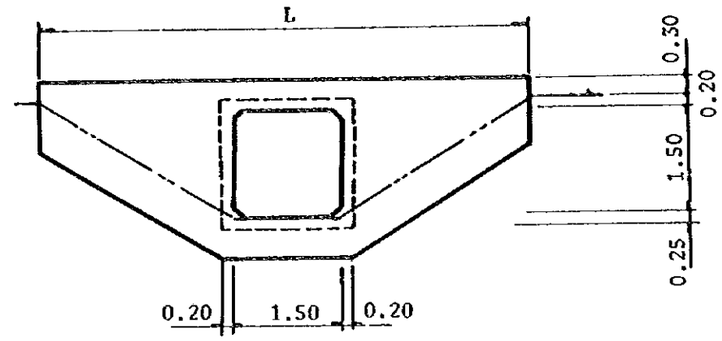
PLAN OF FARM BLOCK

DATE	1984, JUNE	DRG. NO	24

JAPAN INTERNATIONAL COOPERATION AGENCY

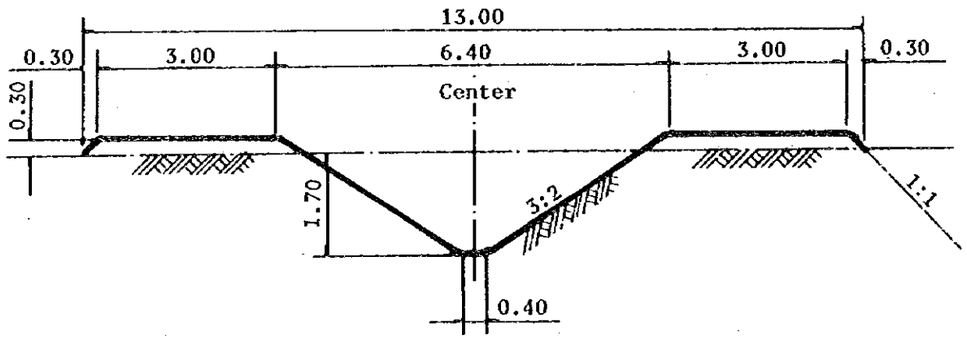


TYPICAL SECTION OF TERTIARY CANAL

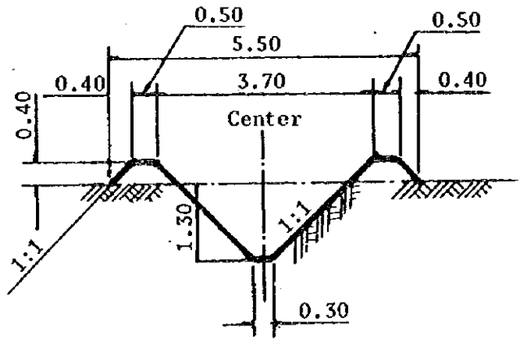


CROSS CULVERT OF SECODARY CANAL

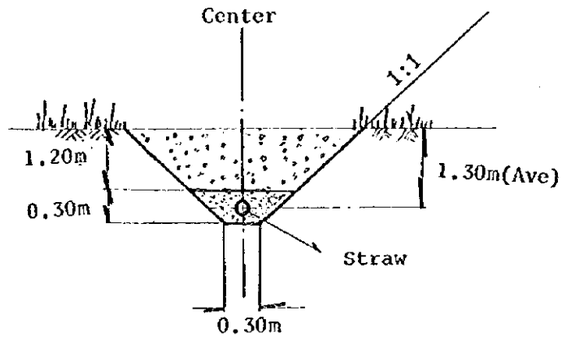
L:depending on the Canal width



TYPICAL SECTION OF TERTIARY DRAIN



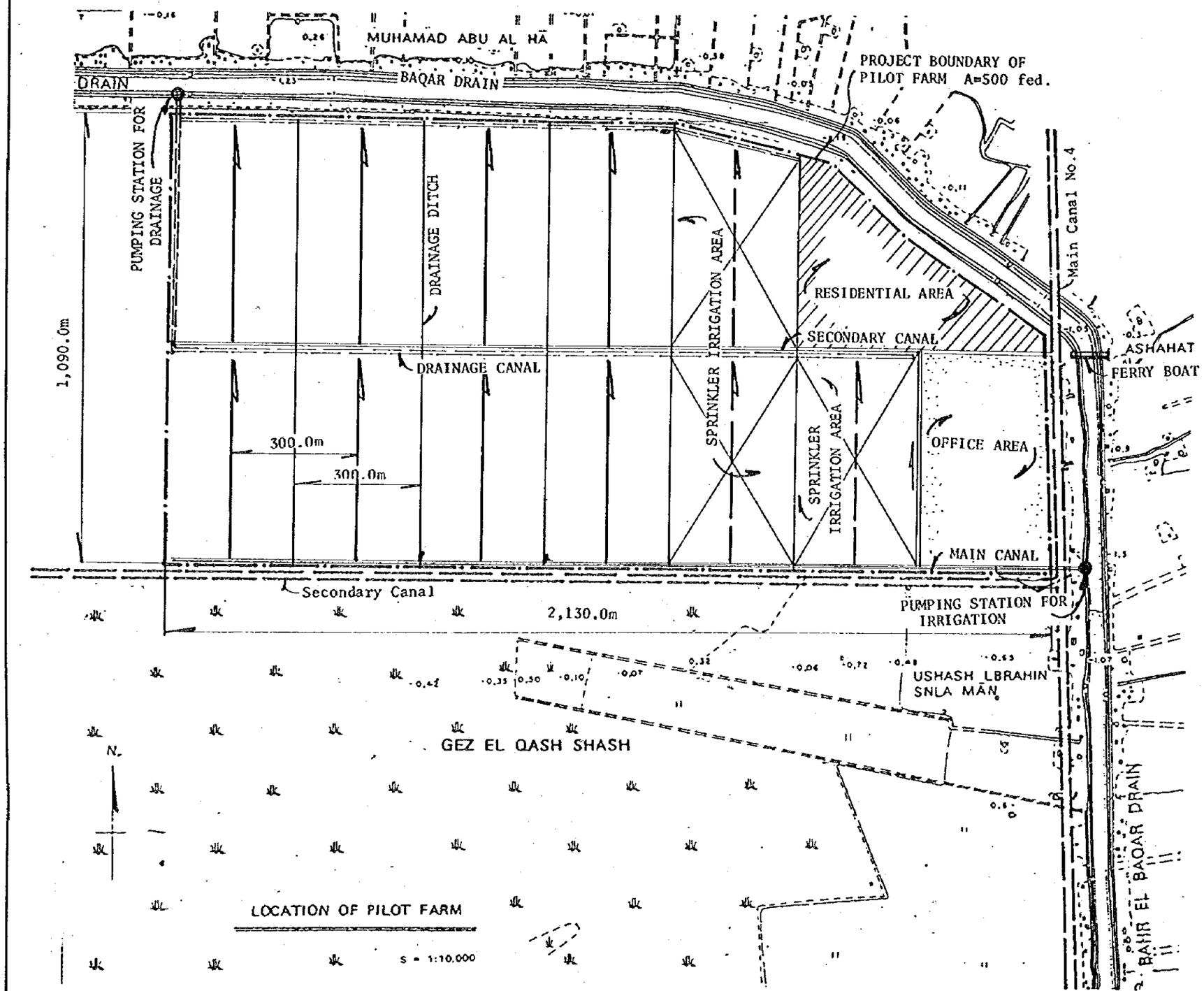
TYPICAL SECTION OF FARM DRAIN



TYPICAL SECTION OF FARM PIPE DRAIN

ALL DIMENTIONS ARE SHOWN IN METERS

ARAB REPUBLIC OF EGYPT MINISTRY OF LAND RECLAMATION			
NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT			
TYPICAL SECTION OF ON-FARM FACILITIES			
DATE	1981, JUNE	DRG. NO	25
JAPAN INTERNATIONAL COOPERATION AGENCY			



LEGEND

- PUMPING STATION FOR IRRIGATION
- PUMPING STATION FOR DRAINAGE
- PROJECT BOUNDARY
- MAIN, SECONDARY CANAL
- MAIN, SECONDARY DRAINAGE CANAL
- TERTIARY CANAL
- TERTIARY DRAINAGE CANAL
- FERRY BOAT STATION
- RESIDENTIAL AREA
  - LABOR HOSES =700 sqm
  - MOTOR POOL=450 sqm
  - STORAGE=400 sqm
  - CATTLE SHED=400 sqm
- OFFICE AREA
  - OFFICE BUILDING=150 sqm
  - TRAINNING CENTER=300 sqm
  - LODGING FOR TRAINER 600 sqm.
  - EXPERIMENTAL OFFICE FOR LIVESTOCK=150 sqm
  - LABORATORY FOR AGRICULTURE =200 sqm
  - MOSQUE=100 sqm

ALL DIMENSIONS ARE SHOWN IN METER.

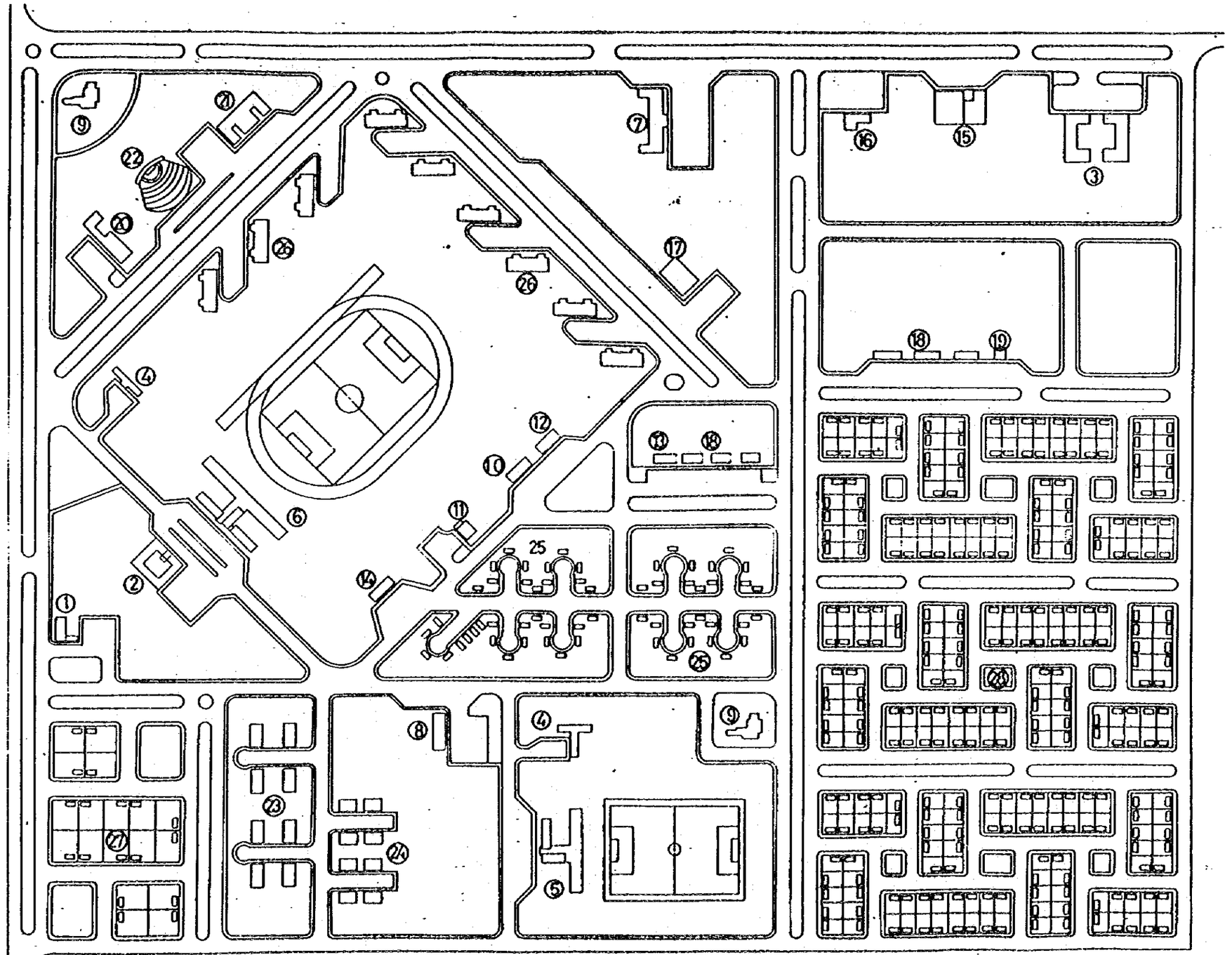
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

LAYOUT OF PILOT FARM

DATE	1986, JUNE	DWG. NO	26

JAPAN INTERNATIONAL COOPERATION AGENCY



① VILLAGE DEVELOPMENT OFFICE
② ADMINISTRATION OFFICE
③ ARTIFICIAL INSEMINATION CENTER
④ NURSERY SCHOOL
⑤ COMBINED SCHOOL
⑥ HIGH SCHOOL
⑦ HOSPITAL
⑧ MEDICAL TREATMENT UNIT
⑨ MOSQUE
⑩ POLICE STATION
⑪ POST OFFICE
⑫ FIRE STATION
⑬ STORE
⑭ VILLAGE BANK
⑮ WORKSHOP
⑯ AUTO SERVICE
⑰ MARKET WITH BAKERY
⑱ GROUP OF SHOPS
⑲ SEPARATED BAKERY
⑳ REST HOUSE FOR EMPLOYEES
㉑ CLUB
㉒ CINEMA/THEATRE HOUSE
㉓ DIRECTORS' HOUSE
㉔ ASS'T DIRECTORS' HOUSE
㉕ TECHNICAL LABORERS' HOUSE
㉖ APARTMENT
㉗ OWNERS' HOUSE
㉘ FARMERS' HOUSE

0 50 100 m

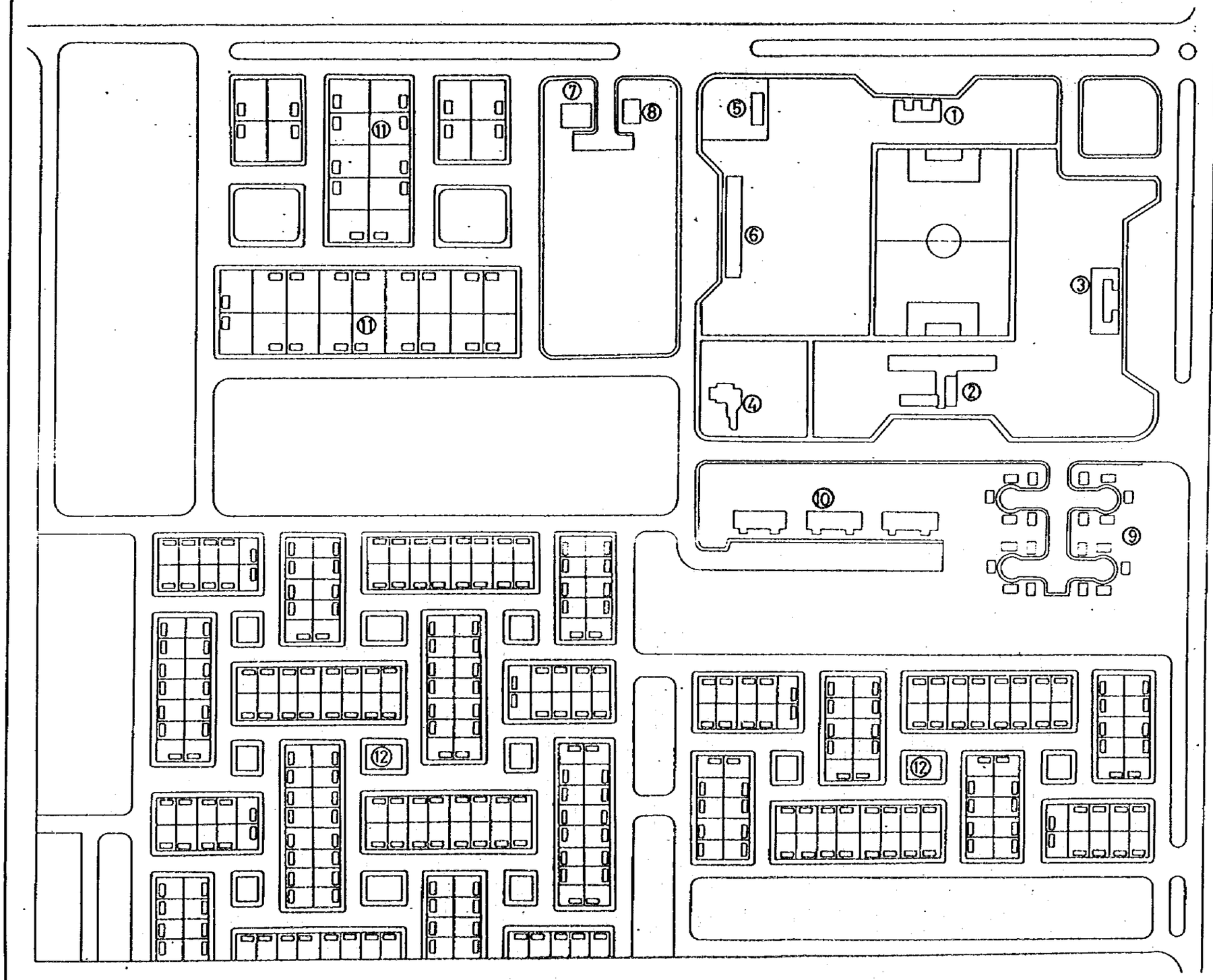
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH NUBSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

LOCATION of BUILDINGS
of CENTRAL VILLAGE

DATE	1981, JUNE	DRG. NO	27

JAPAN INTERNATIONAL COOPERATION AGENCY



① VILLAGE DEVELOPMENT OFFICE
② COMBINED SCHOOL
③ MEDICAL TREATMENT UNIT
④ MOSQUE
⑤ AUTO SERVICE
⑥ MARKET WITH BAKERY
⑦ DIRETORS' HOUSE
⑧ ASS'T DIRECTORS' HOUSE
⑨ TECHNICAL LABORERS' HOUSE
⑩ APARTMENT
⑪ OWNERS' HOUSE
⑫ FARMERS' HOUSE

0 50 100m

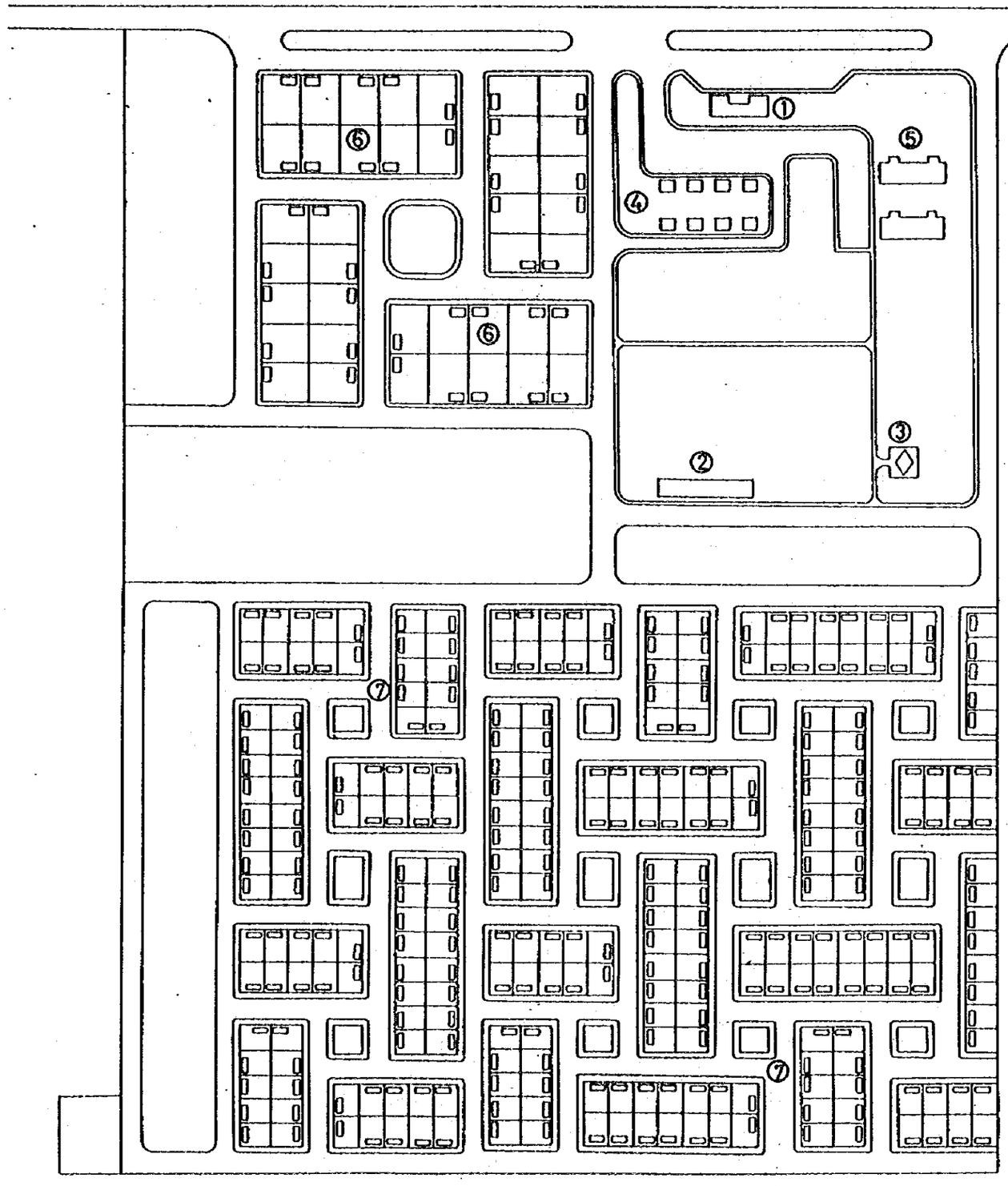
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH
PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

LOCATION of BUILDINGS
of SERVICE VILLAGE

DATE	1981, JUNE	DRG. NO	28

JAPAN INTERNATIONAL COOPERATION AGENCY



① AGRI. ADMINISTRATIVE OFFICE
② GROUP OF SHOPS
③ MOSQUE
④ TECHNICAL LABORERS HOUSE
⑤ APARTMENT
⑥ OWNERS' HOUSE
⑦ FARMERS' HOUSE

0 50 100m

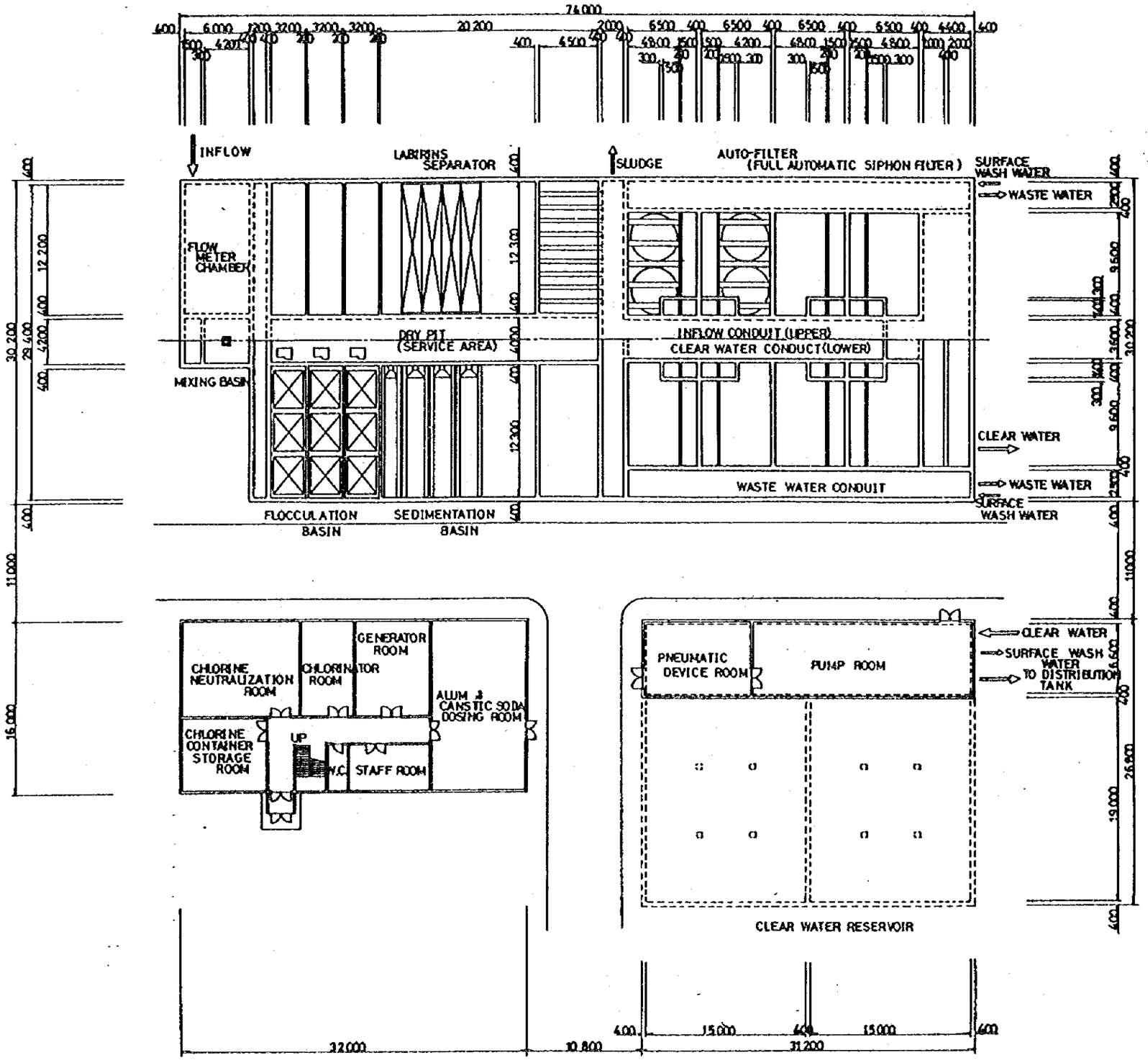
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

LOCATION of BUILDINGS of SATELLITE VILLAGE

DATE	1986, JUNE	DRG. NO	29

JAPAN INTERNATIONAL COOPERATION AGENCY



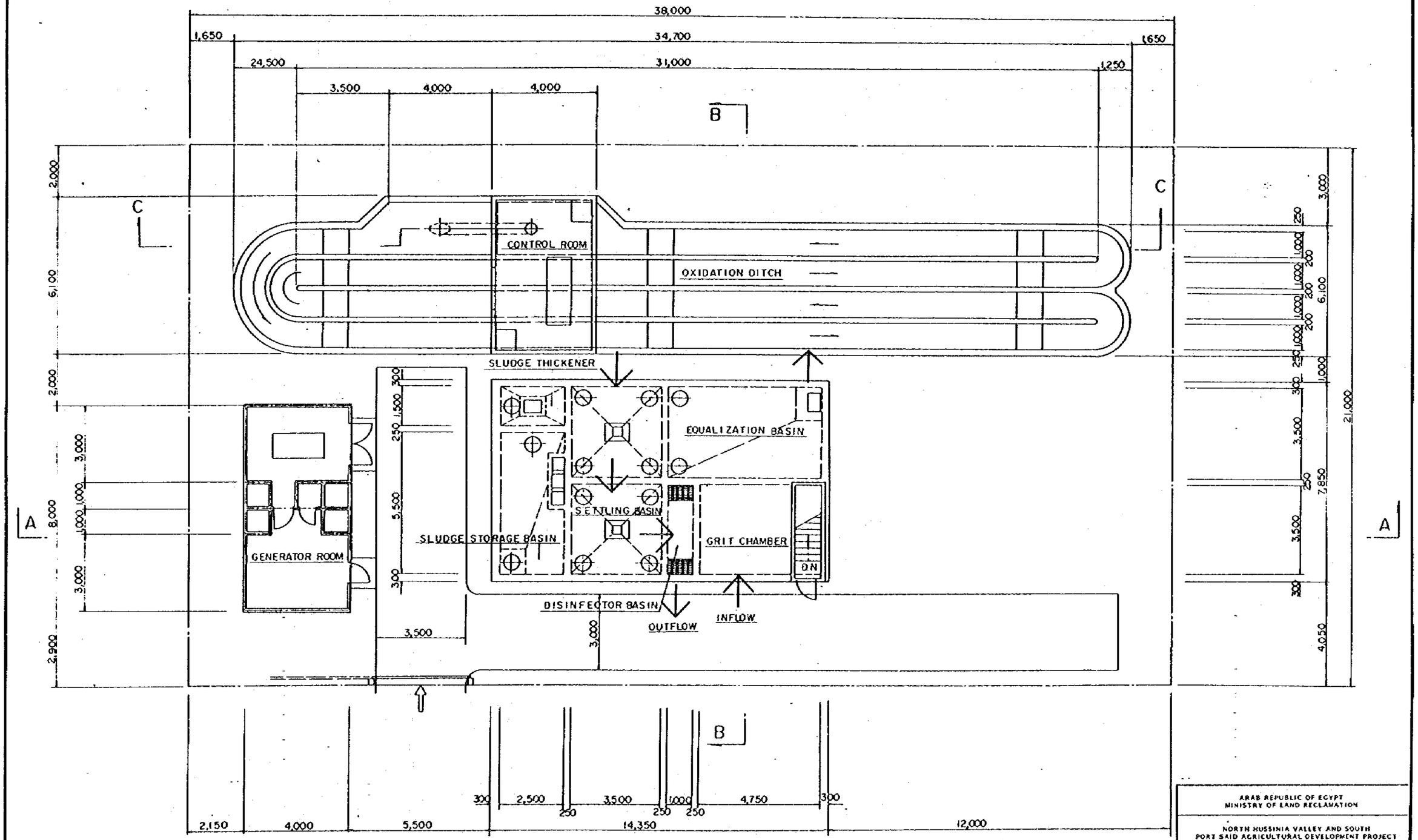
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSEINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PLOT PLAN OF WATER TREATMENT STRUCTURE (1)

DATE	1981, JUNE	DWG. NO	30

JAPAN INTERNATIONAL COOPERATION AGENCY



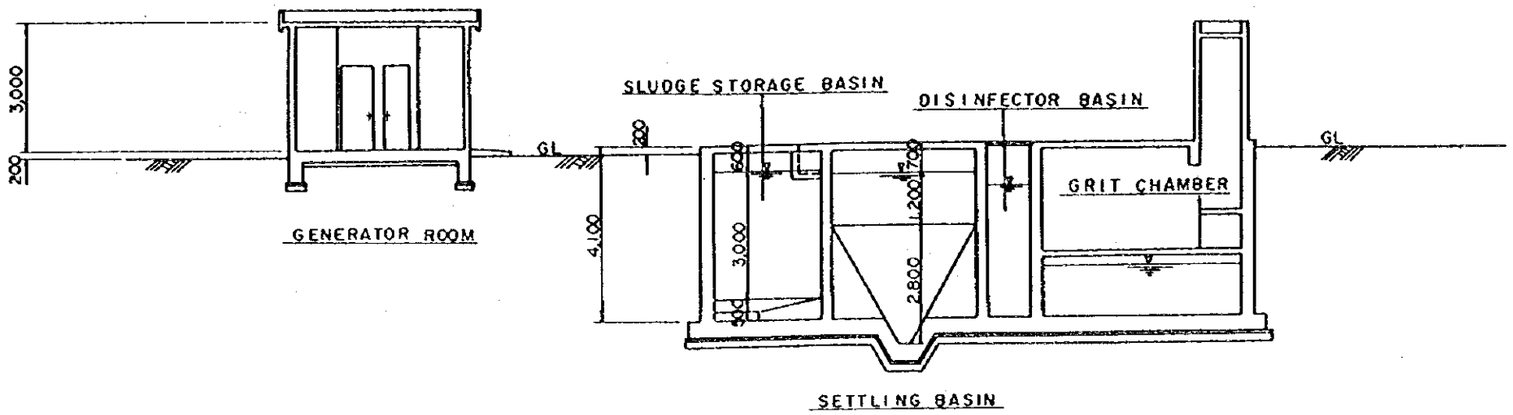
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

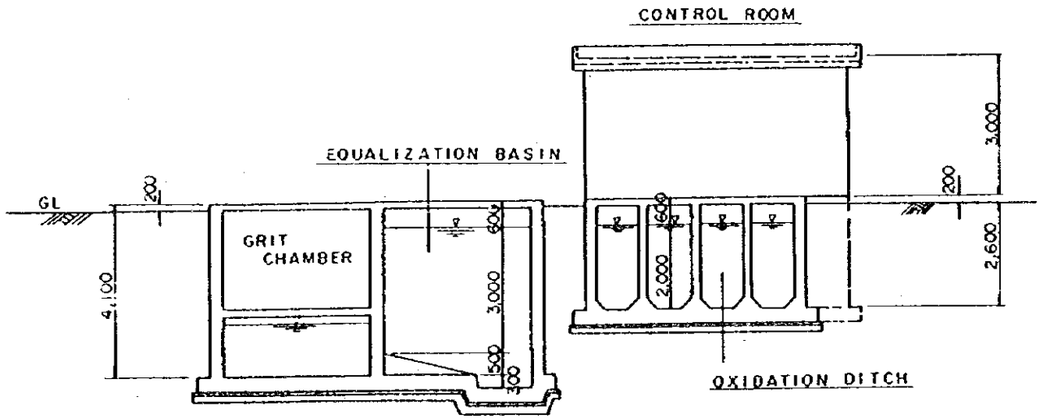
PLOT PLAN OF WATER TREATMENT STRUCTURE: PLAN (2)

DATE	1984, JUNE	DWG. NO	31

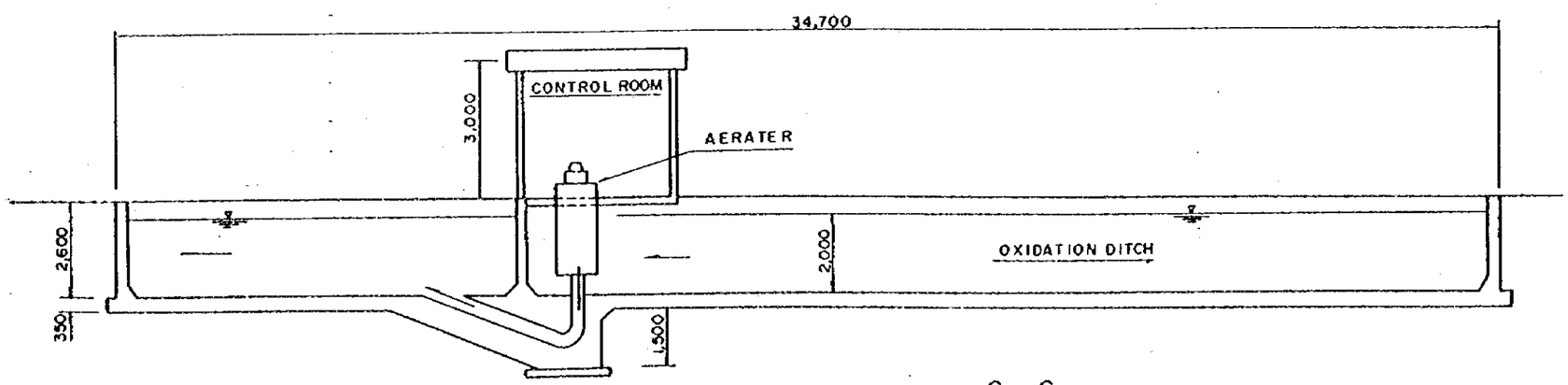
JAPAN INTERNATIONAL COOPERATION AGENCY



A — A

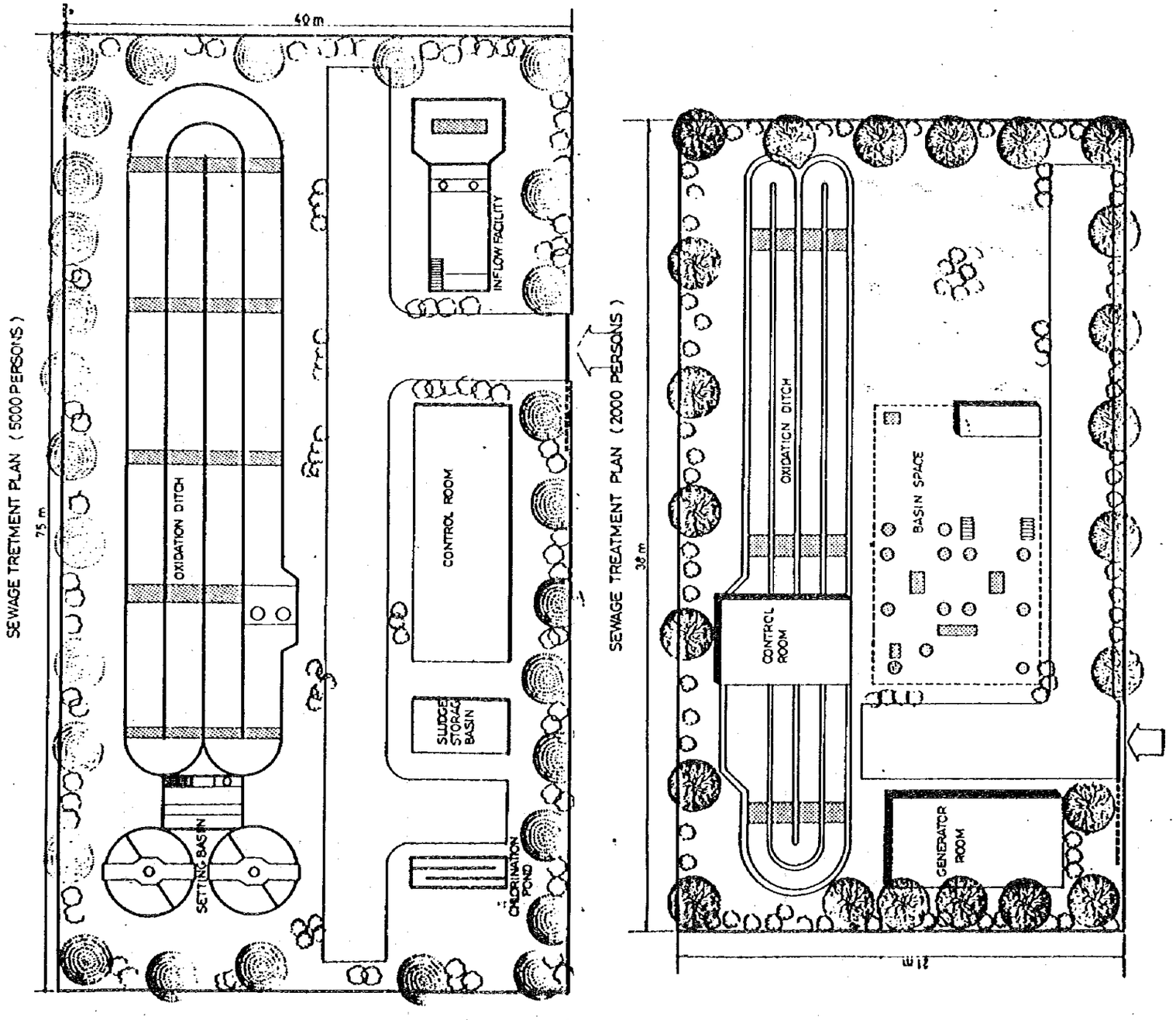


B — B



C — C

ARAB REPUBLIC OF EGYPT MINISTRY OF LAND RECLAMATION			
NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT			
PLOT PLAN OF WATER TREATMENT STRUCTURE: SECTION VIEW (3)			
DATE	1986, JUNE	DWG. NO	32
JAPAN INTERNATIONAL COOPERATION AGENCY			



ARAB REPUBLIC OF EGYPT MINISTRY OF LAND RECLAMATION	
NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT	
SEWAGE TREATMENT PLAN	
DATE	1981, JUNE
DRG. NO	33
JAPAN INTERNATIONAL COOPERATION AGENCY	

ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

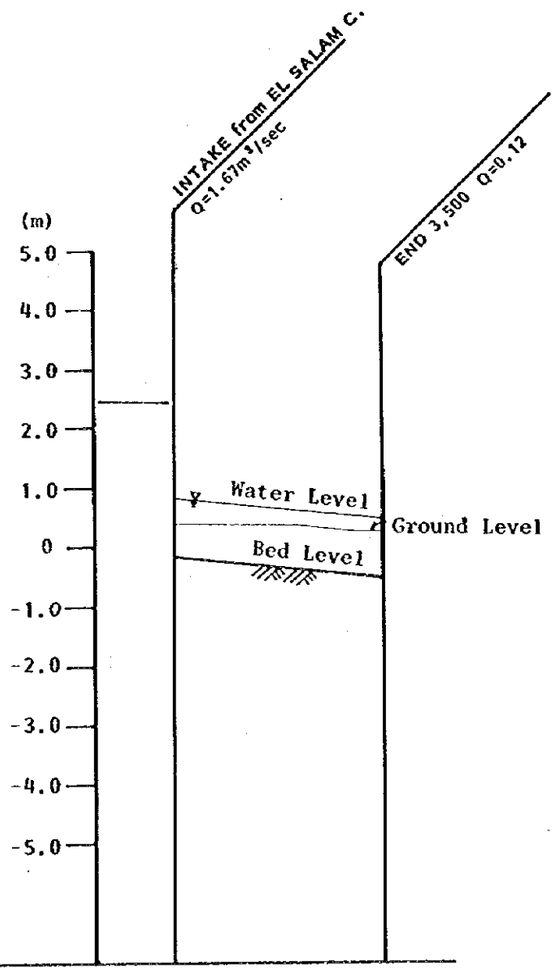
NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN IRRIGATION CANAL, M-1, M-2

DATE	1994, JUNE	DRG. NO	34

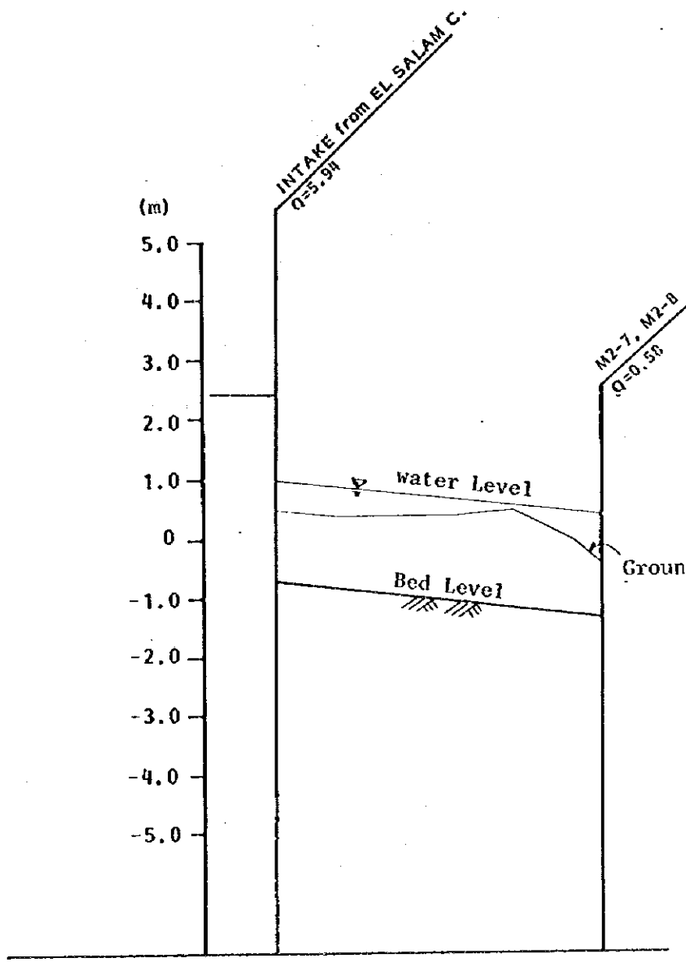
JAPAN INTERNATIONAL COOPERATION AGENCY

M-1



GRADIENT	I=1/10,000 Q=0.99 B=2.00				
BOTTOM ELEVATION OF CANAL (m)	-0.15				-0.35
GROUND LEVEL (m)	0.4	0.4	0.4	0.3	
STATION NO.(m)	0	1,000	2,000	3,000	3,500

M-2



GRADIENT	I=1/10,000 Q=3.78 B=3.00						
BOTTOM ELEVATION OF CANAL (m)	-0.70						-1.25
GROUND LEVEL (m)	0.5	0.4	0.4	0.4	0.5	0.0	
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	5,500

M-3

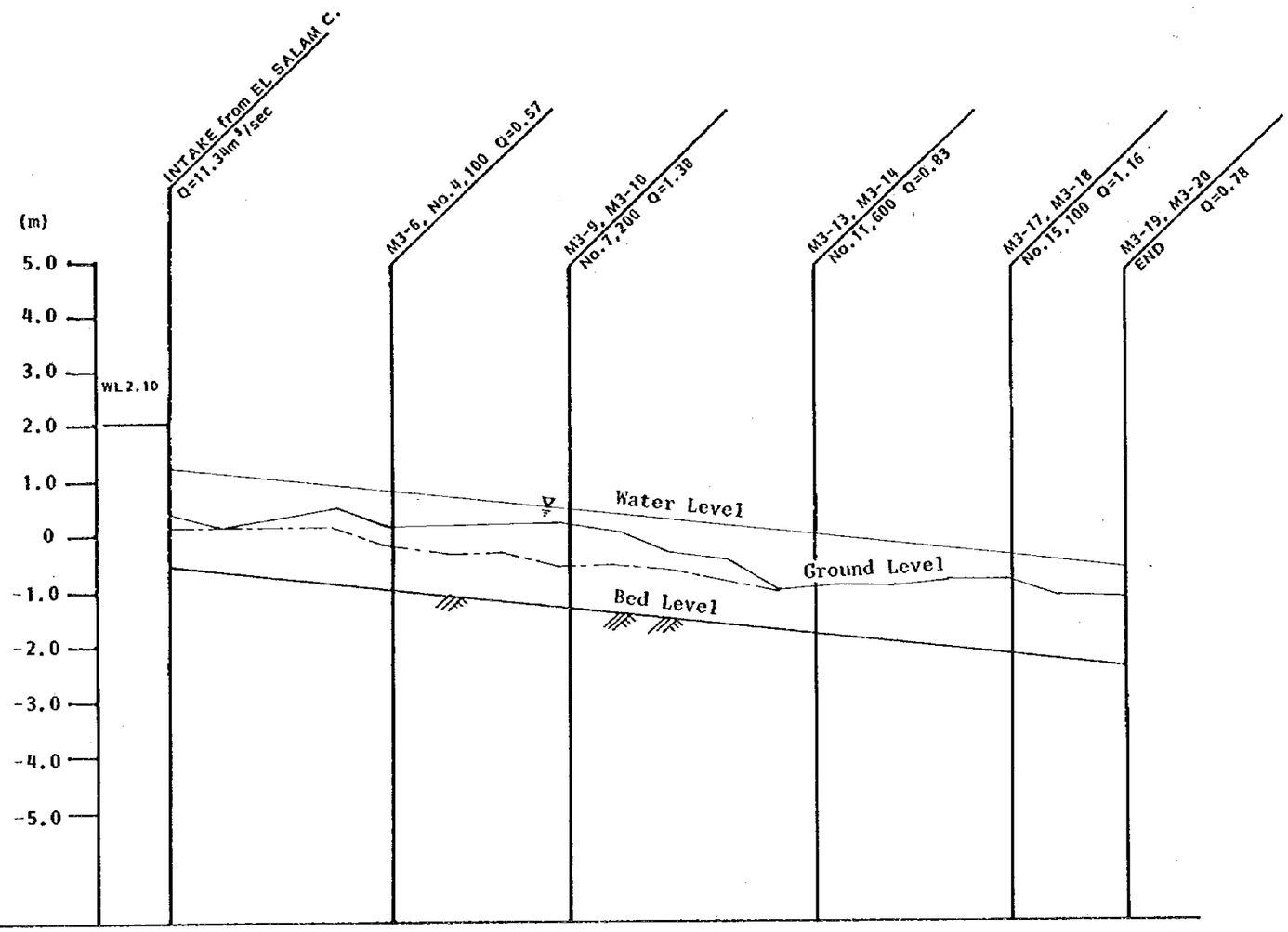
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN IRRIGATION CANAL, M-3

DATE	1988, JUNE	DWG. NO	35

JAPAN INTERNATIONAL COOPERATION AGENCY



GRADIENT	Q=10.46 B=9.00			Q=8.09 B=7.00			I=1/10,000 Q=5.15 B=4.00				Q=3.13 B=2.00				Q=0.86 B=1.00			
BOTTOM ELEVATION OF CANAL (m)	-0.60			-1.00			-1.30				-1.76				-2.11			-2.32
GROUND LEVEL (m)	0.4	0.2	0.3	0.5	0.2	0.2	0.2	0.2	-0.1	-0.3	-0.4	-1.0	-0.9	-0.9	-0.8	-0.8	-1.1	-1.1	-1.1
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000	13,000	14,000	15,000	16,000	17,000	17,200

M-4

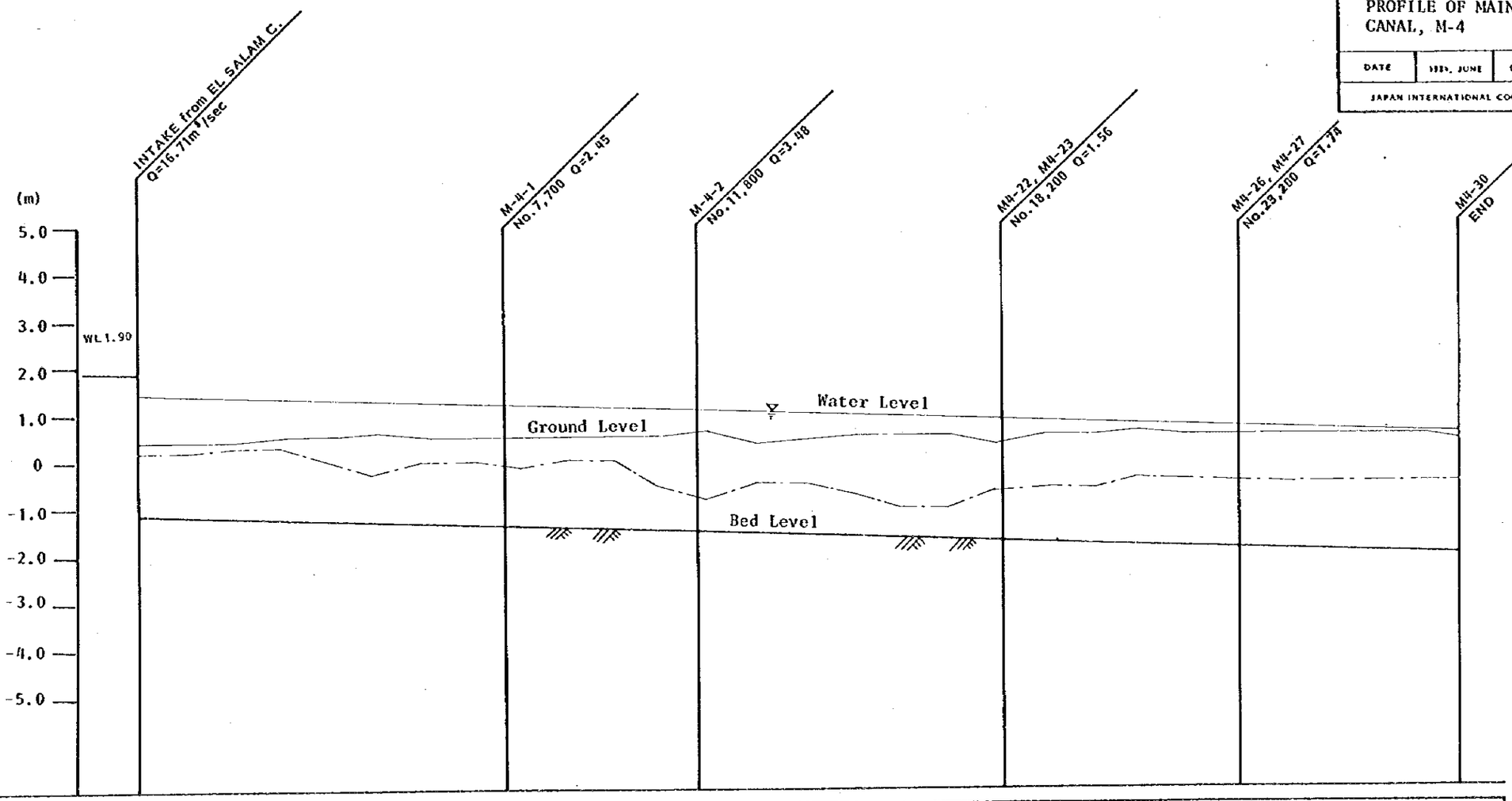
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN IRRIGATION CANAL, M-4

DATE	1989, JUNE	DRG. NO	36

JAPAN INTERNATIONAL COOPERATION AGENCY



GRADIENT	I=1/30,000																												
	Q=16.38							B=15.00	Q=11.14			B=9.50	Q=7.66					B=6.00	Q=5.35				B=3.50	Q=2.03				B=1.00	
BOTTOM ELEVATION OF CANAL (m)	-1.00							-1.26				-1.39						-1.61					-1.77					-1.92	
GROUND LEVEL (m)	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.3	0.4	0.5	0.5	0.5	0.3	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.4
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000	13,000	14,000	15,000	16,000	17,000	18,000	19,000	20,000	21,000	22,000	23,000	24,000	25,000	26,000	27,000	27,700

ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

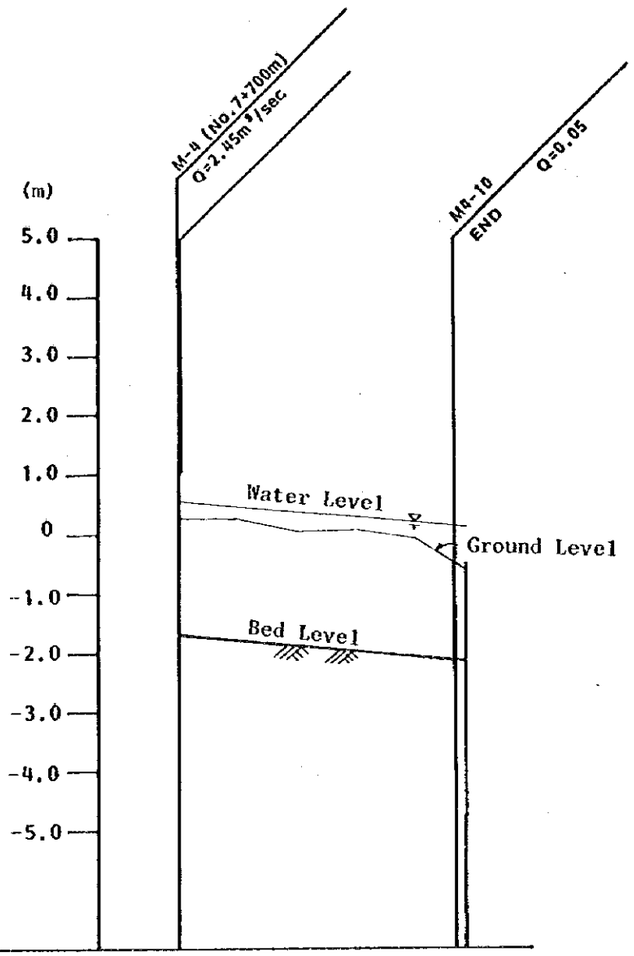
NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN IRRIGATION CANAL, M-4-1, M-4-2

DATE	15th. JUNE	DWG. NO	37

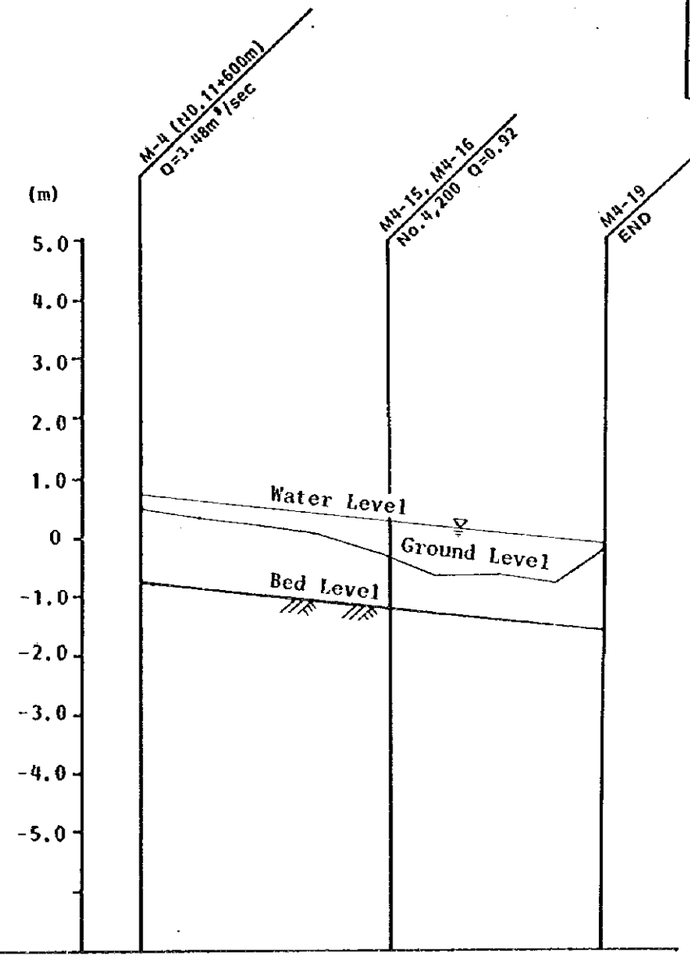
JAPAN INTERNATIONAL COOPERATION AGENCY

M-4-1



GRADIENT	I=1/10,000 Q=1.83 B=2.00						
BOTTOM ELEVATION OF CANAL (m)	-0.70						-1.18
GROUND LEVEL (m)	0.3	0.3	0.1	0.1	0.0	0.5	
STATION NO.(m)	0	1,000	2,000	3,000	4,000	4,750	

M-4-2



GRADIENT	I=1/10,000 Q=3.00 B=3.00			Q=1.02 B=1.00					
BOTTOM ELEVATION OF CANAL (m)	-0.82			-1.24					-1.60
GROUND LEVEL (m)	0.5	0.3	0.2	0.1	-0.2	-0.6	-0.6	-0.7	-0.3
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000	7,750

M-5

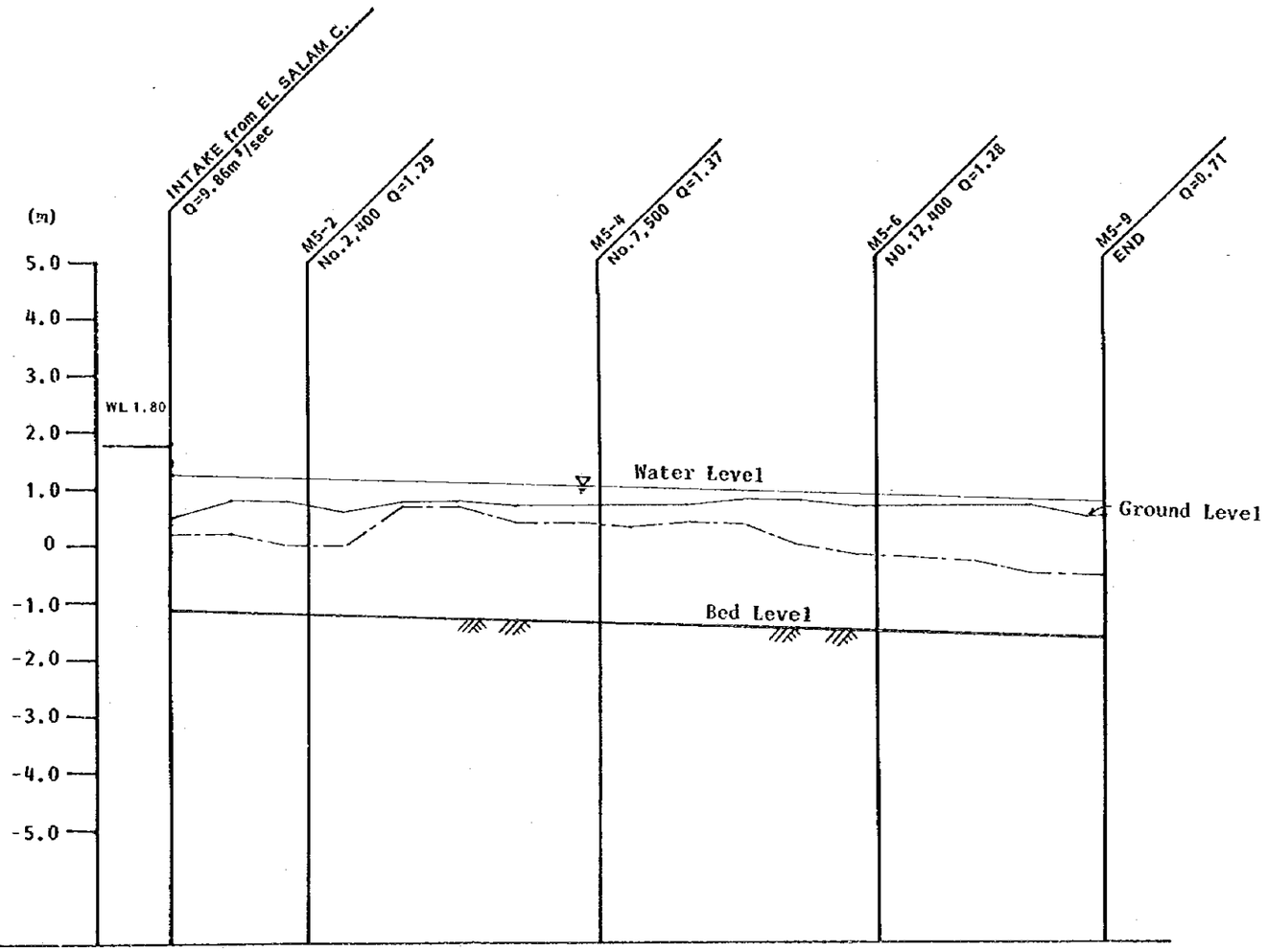
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN IRRIGATION CANAL, M-5

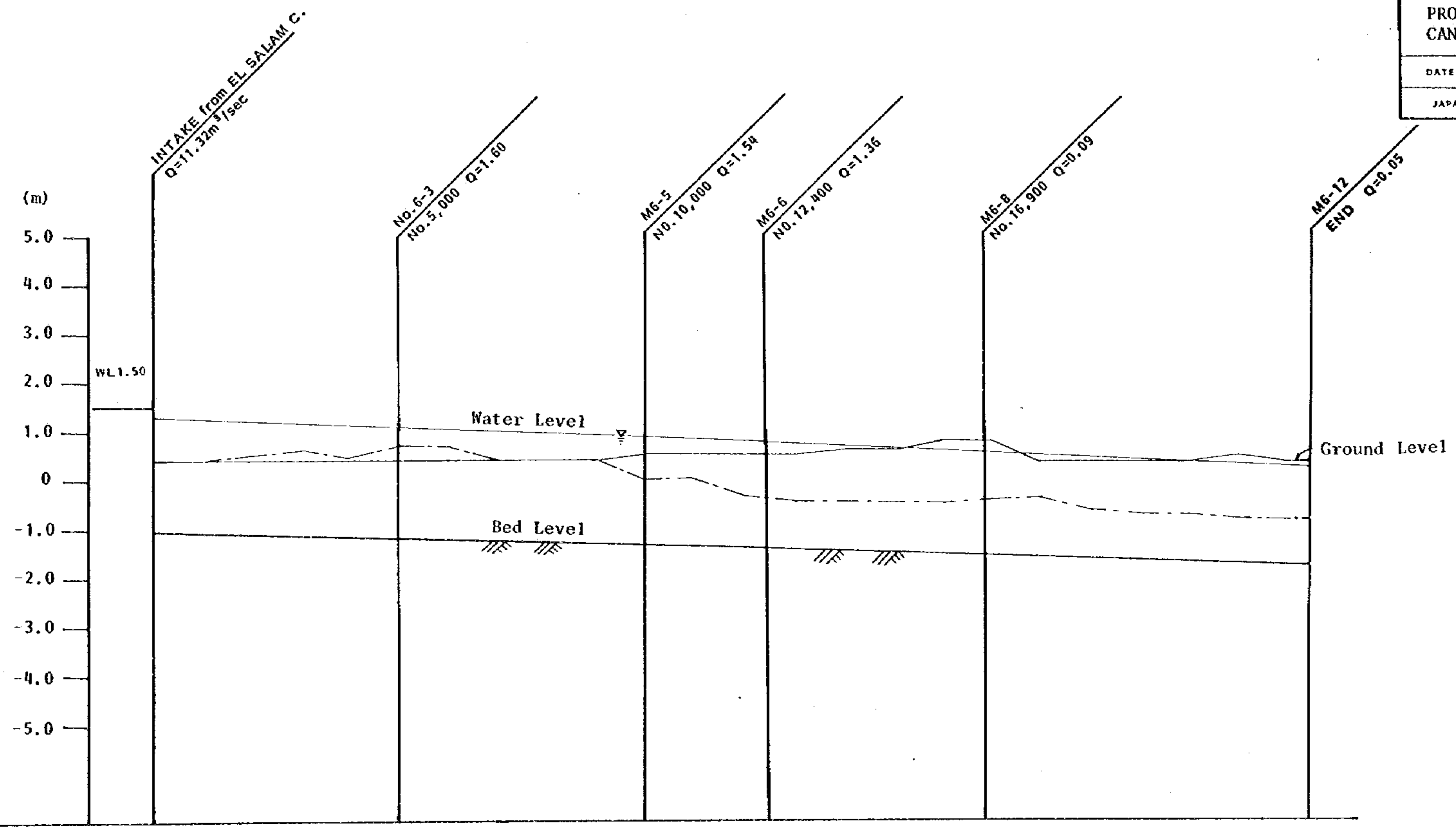
DATE	1989, JUNE	DWG. NO	38

JAPAN INTERNATIONAL COOPERATION AGENCY



GRADIENT	I=1/40,000																		
	Q=9.25 B=9.50		Q=7.96					B=8.00 Q=5.25					B=4.50 Q=2.65					B=2.00	
BOTTOM ELEVATION OF CANAL (m)	-1.32		-1.38					-1.51					-1.63					-1.73	
GROUND LEVEL (m)	0.5	0.8	0.8	0.6	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.5	0.5	
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000	13,000	14,000	15,000	16,000	16,300	

M-6



GRADIENT: I=1/40,000

Section	Q	B	Bottom elevation of canal (m) at start
0 – 5,000	Q=10.63	B=11.00	-1.10
5,000 – 10,000	Q=7.40	B=7.50	-1.13
10,000 – 12,400	Q=4.26	B=3.50	-1.35
12,400 – 16,900	Q=2.90	B=2.00	-1.41
16,900 – 23,400	Q=1.63	B=1.00	-1.52
23,400 (end)			-1.69

STATION NO.(m)	GROUND LEVEL (m)
0	0.4
1,000	0.4
2,000	0.4
3,000	0.4
4,000	0.4
5,000	0.4
6,000	0.4
7,000	0.4
8,000	0.4
9,000	0.4
10,000	0.5
11,000	0.5
12,000	0.5
13,000	0.5
14,000	0.6
15,000	0.6
16,000	0.8
17,000	0.8
18,000	0.4
19,000	0.4
20,000	0.4
21,000	0.4
22,000	0.5
23,000	0.4
23,400	0.4

ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH
PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN IRRIGATION CANAL, M-6

DATE	1984, JUNE	DWG. NO	39

JAPAN INTERNATIONAL COOPERATION AGENCY

D-1

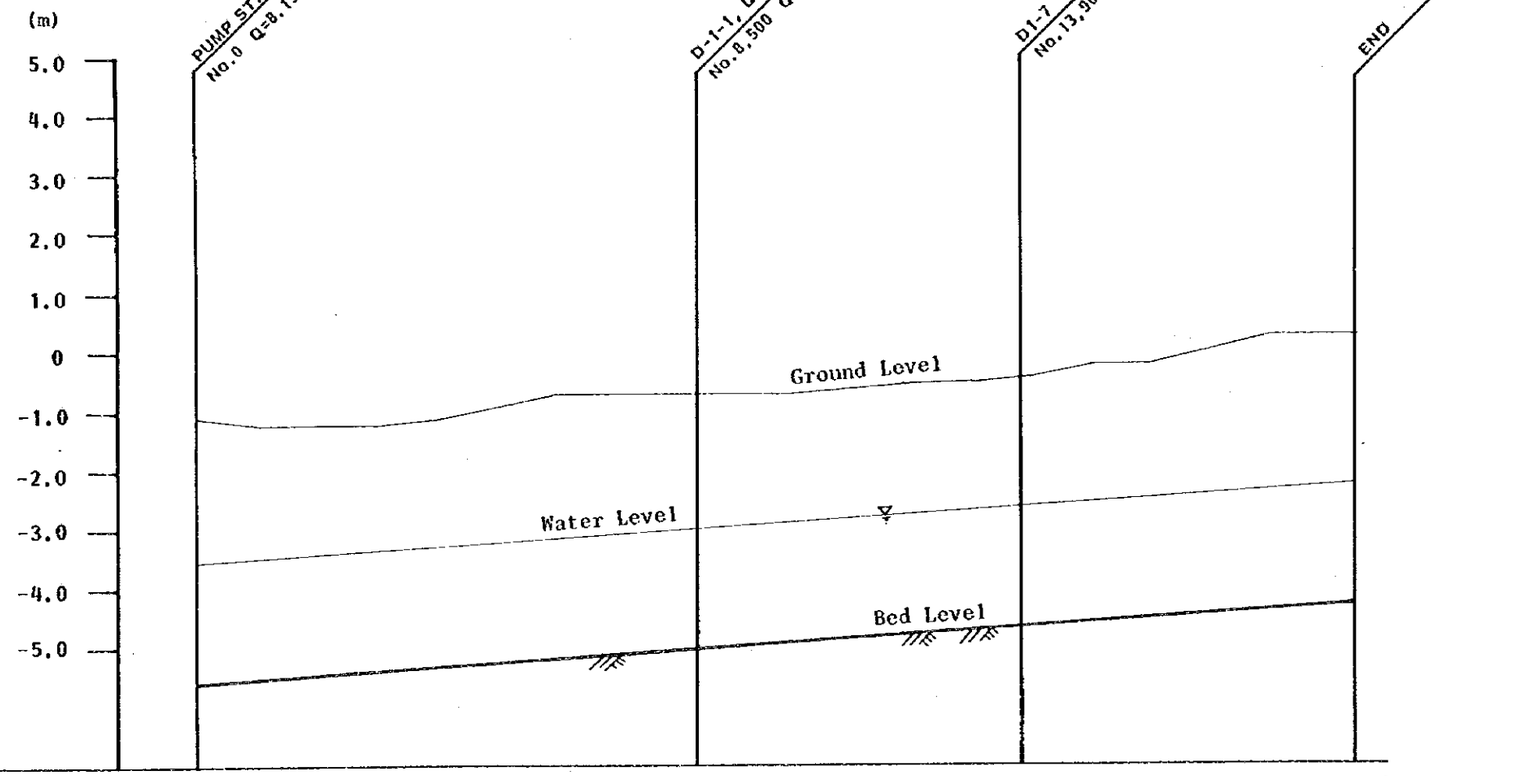
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN DRAINAGE CANAL, D-1

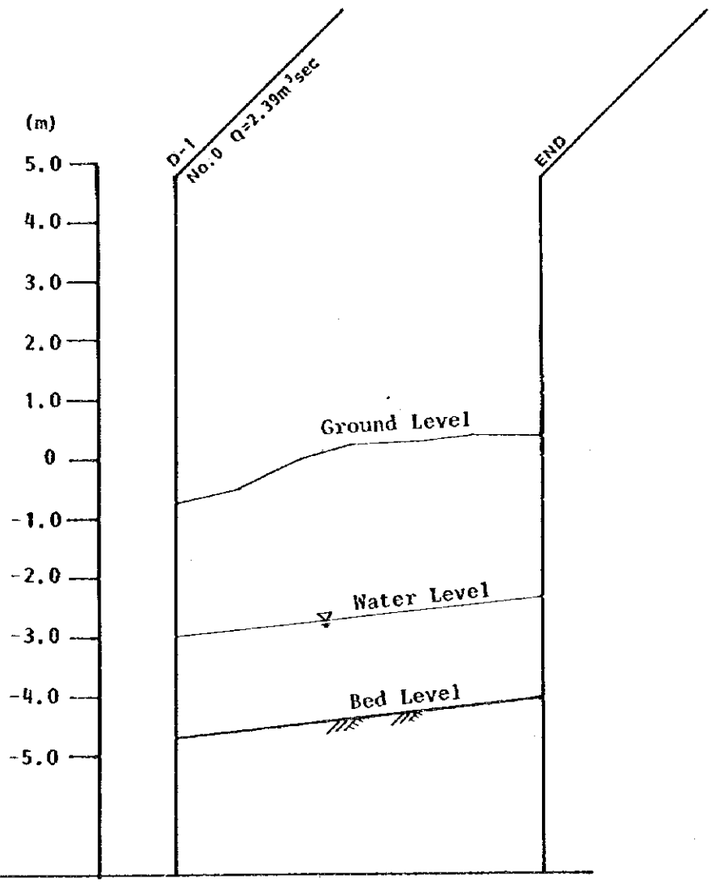
DATE	1989, JUNE	DWG. NO	40

JAPAN INTERNATIONAL COOPERATION AGENCY



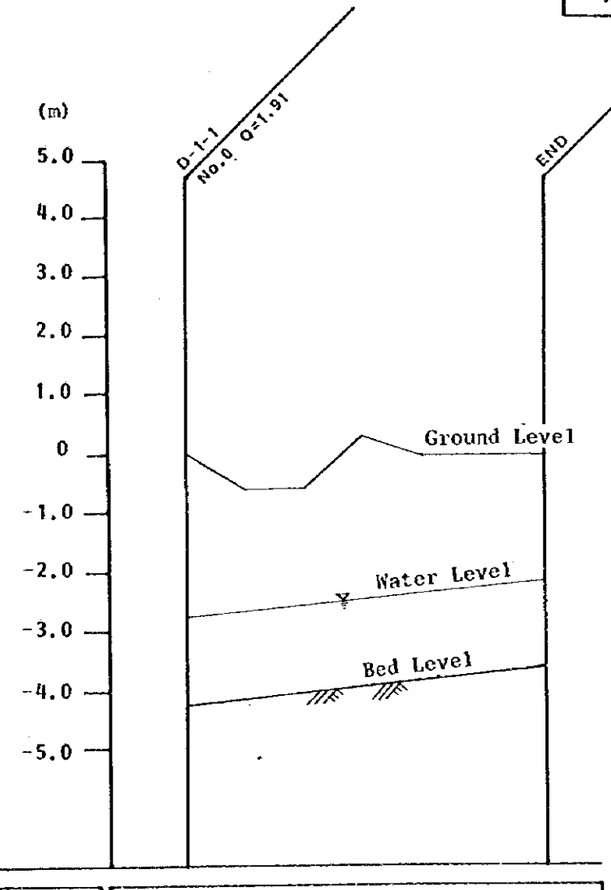
GRADIENT	I=1/15,000																				
	Q=8.19							B=8.00	Q=4.54					B=4.00	Q=2.89					B=2.00	
BOTTOM ELEVATION OF CANAL (m)	-5.50							-4.93						-4.57						-4.20	
GROUND LEVEL (m)	-1.1	-1.2	-1.2	-1.2	-1.1	-0.9	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.5	-0.5	-0.4	-0.2	-0.2	0.0	0.3	0.3	0.3
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000	13,000	14,000	15,000	16,000	17,000	18,000	19,000	19,500

D-1-1



GRADIENT	I=1/10,000 Q=2.39 B=1.50							
BOTTOM ELEVATION OF CANAL (m)	-4.60							-3.98
GROUND LEVEL (m)	-0.7	-0.5	0.0	0.3	0.3	0.4	0.4	0.4
STATION NO. (m)	0	1,000	2,000	3,000	4,000	5,000	6,000	6,200

D-1-2



GRADIENT	I=1/10,000 Q=1.91 B=1.50							
BOTTOM ELEVATION OF CANAL (m)	-4.20							-3.59
GROUND LEVEL (m)	0.0	-0.6	-0.6	-0.6	0.0	0.0	0.0	0.0
STATION NO. (m)	0	1,000	2,000	3,000	4,000	5,000	6,000	6,100

ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

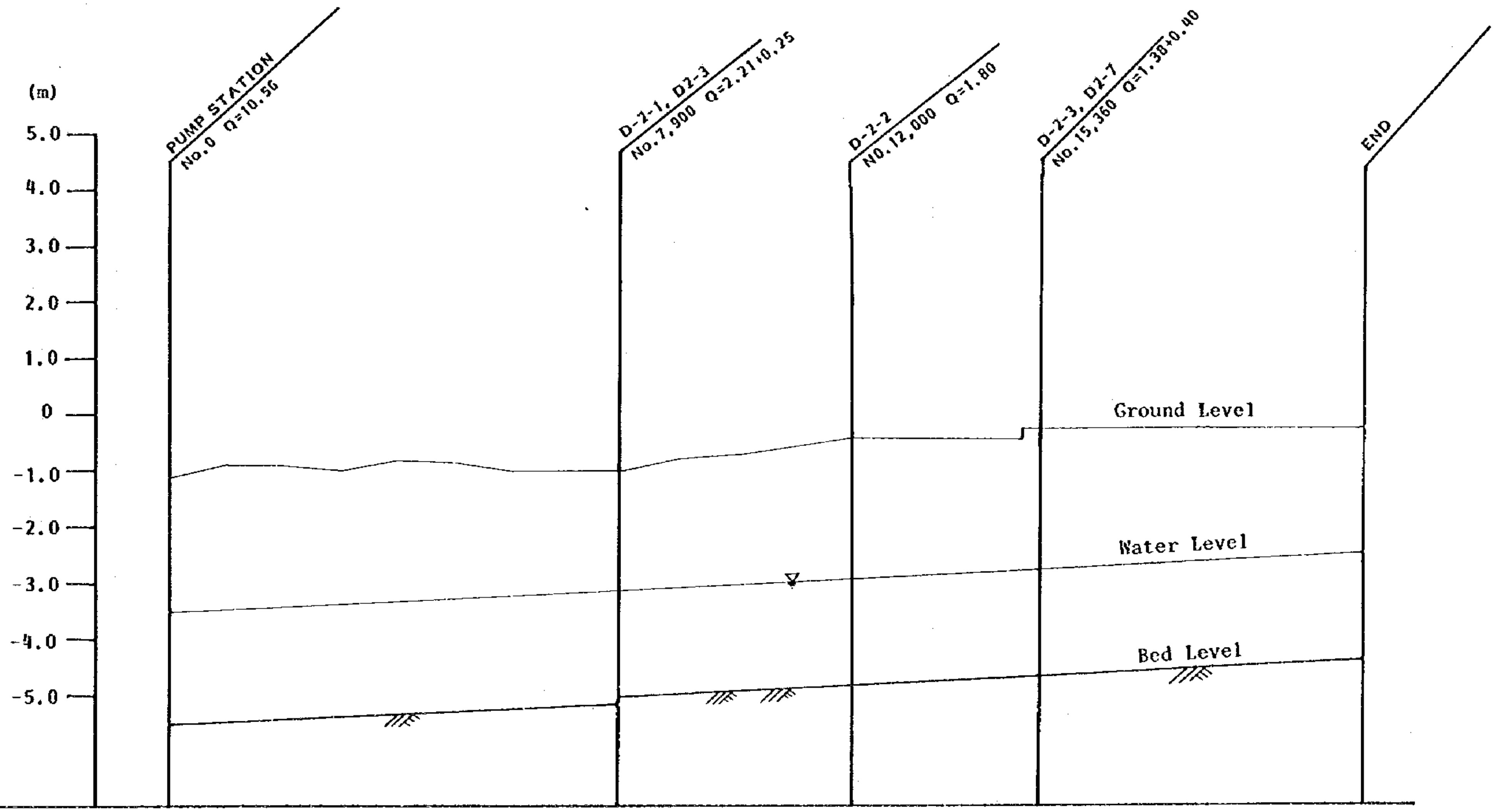
NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN DRAINAGE CANAL, D-1-1, D-1-2

DATE	1981, JUNE	DWG. NO	41

JAPAN INTERNATIONAL COOPERATION AGENCY

D-2



GRADIENT: I=1/20,000; Q=10.56; B=12.00; Q=7.10; B=8.00; Q=4.38; B=4.50; Q=1.50; B=1.50

STATION NO. (m)	BOTTOM ELEVATION OF CANAL (m)	GROUND LEVEL (m)
0	-5.50	-1.1
1,000		-0.9
2,000		-0.9
3,000		-1.0
4,000		-0.8
5,000		-0.8
6,000		-1.0
7,000		-1.0
8,000	-5.11 / -5.00	-1.0
9,000		-0.8
10,000		-0.7
11,000		-0.5
12,000	-4.80	-0.4
13,000		-0.4
14,000		-0.4
15,000	-4.63	-0.2
16,000		-0.2
17,000		0.2
18,000		0.2
19,000		0.2
20,000		0.2
21,000	-4.34	0.2
21,100		0.2

ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH
PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN DRAINAGE CANAL, D-2

DATE	1984, JUNE	DWG. NO	42

JAPAN INTERNATIONAL COOPERATION AGENCY

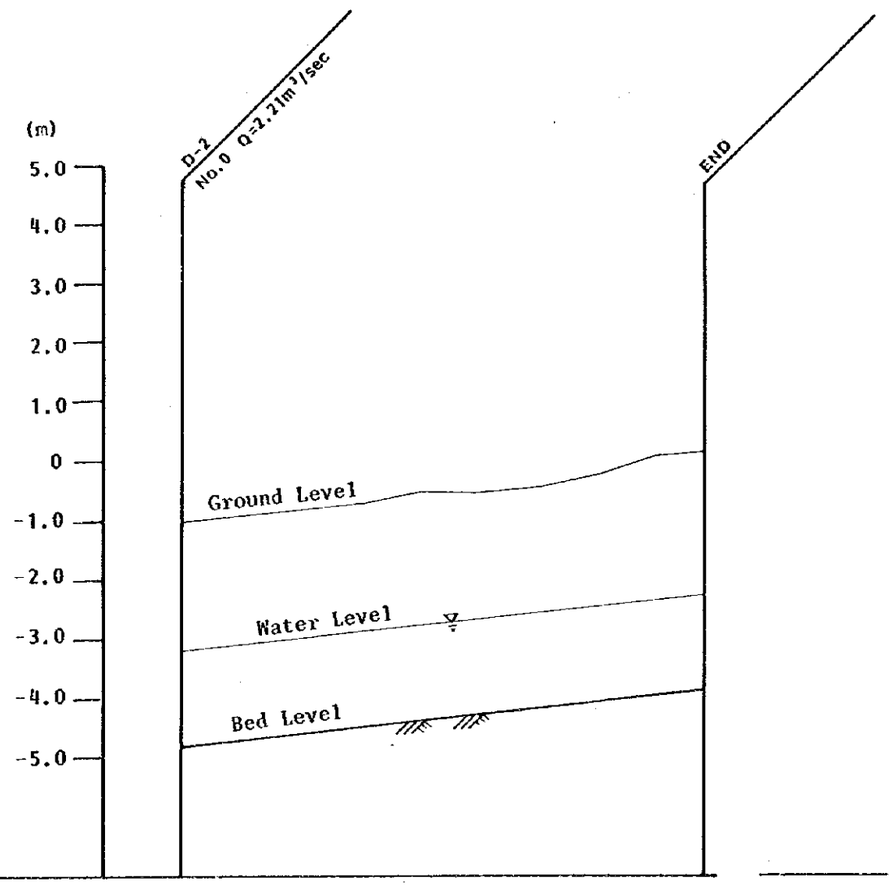
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH NUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

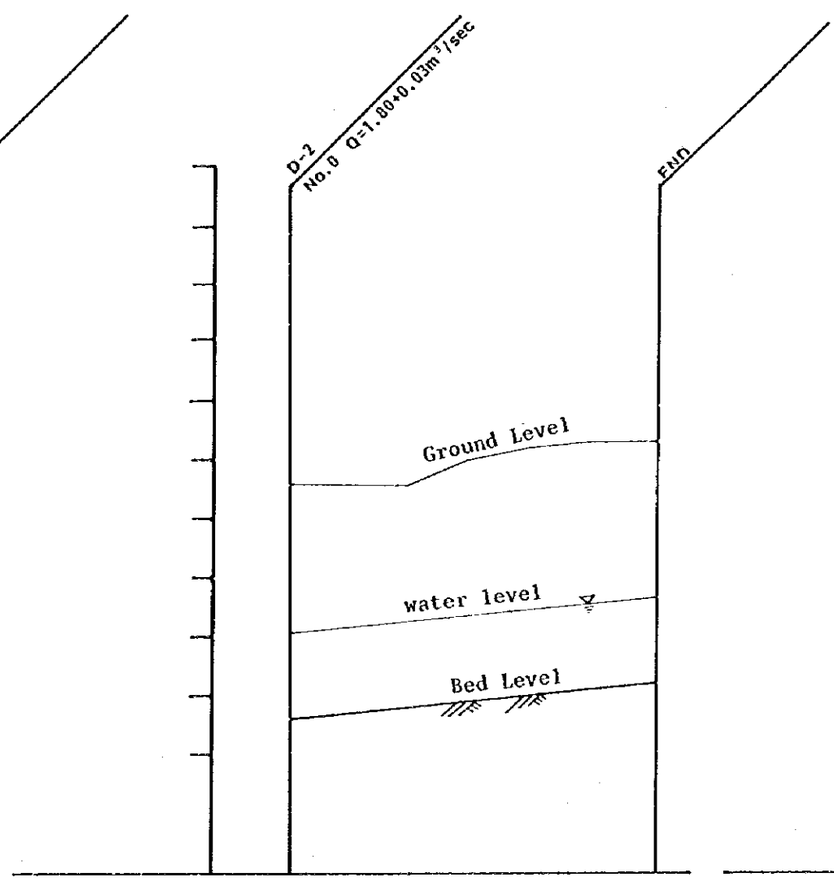
PROFILE OF MAIN DRAINAGE CANAL, D-2-1, D-2-2, D-2-3

DATE	1986, JUNE	DWG. NO	43

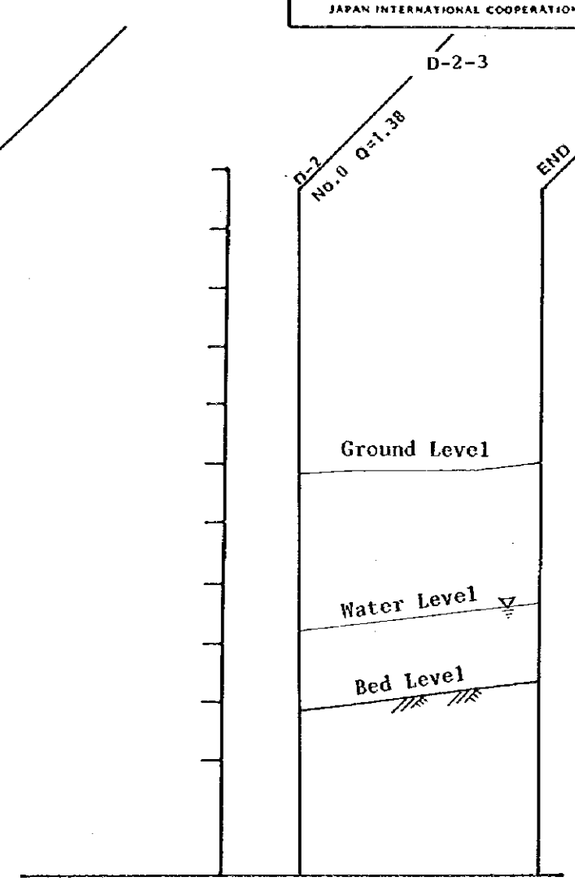
JAPAN INTERNATIONAL COOPERATION AGENCY



GRADIENT	I=1/10,000 Q=2.21 B=1.50									
BOTTOM ELEVATION OF CANAL (m)	-4.71									-3.81
GROUND LEVEL (m)	-1.0	-0.9	-0.8	-0.7	-0.5	-0.5	-0.4	-0.2	0.1	0.2
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	8,800



GRADIENT	I=1/10,000 Q=1.83 B=1.50						
BOTTOM ELEVATION OF CANAL (m)	-4.40						-3.78
GROUND LEVEL (m)	-0.4	-0.4	-0.4	0.0	0.2	0.3	0.3 0.3
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	6,000 6,200



GRADIENT	I=1/10,000 Q=1.83 B=1.50					
BOTTOM ELEVATION OF CANAL (m)	-4.04					-3.64
GROUND LEVEL (m)	-0.2	-0.1	-0.1	-0.1	0.0	
STATION NO.(m)	0	1,000	2,000	3,000	4,000	

D-3

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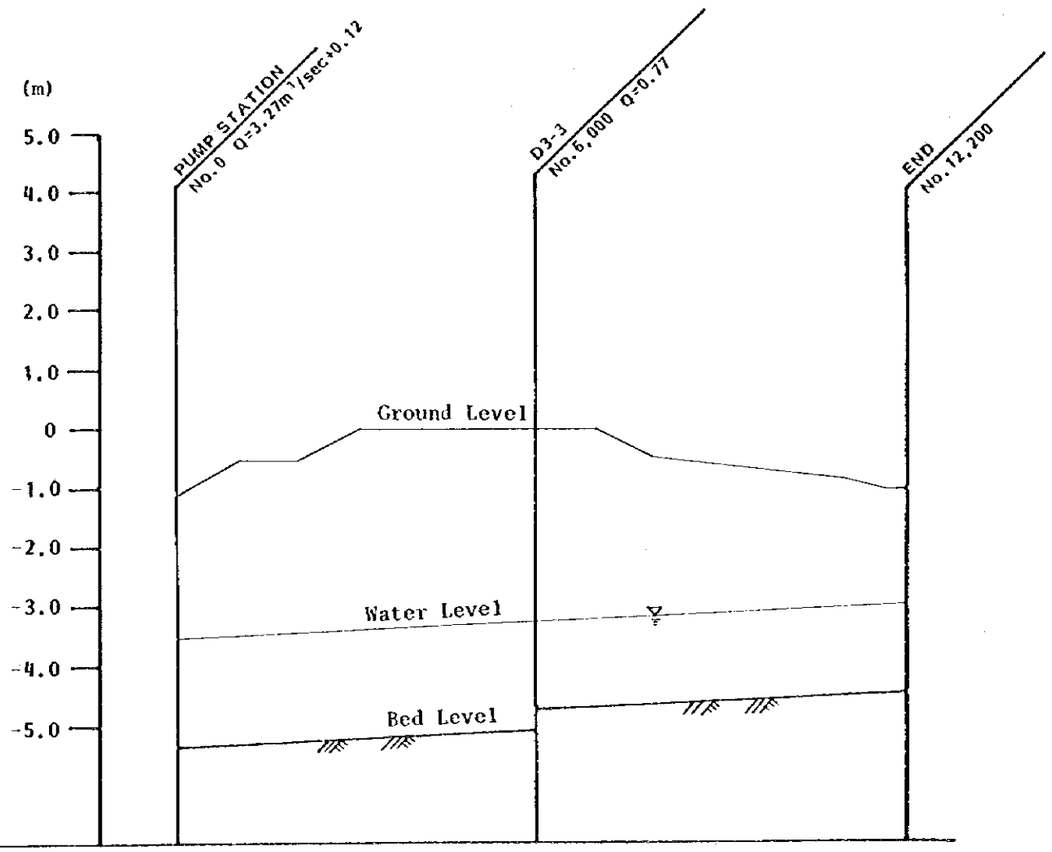
NORTH HUSSINIA VALLEY AND SOUTH
PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN DRAINAGE CANAL, D-3

DATE	1984, JUNE	DWG. NO	44

JAPAN INTERNATIONAL COOPERATION AGENCY



GRADIENT	I=1/20,000 Q=3.27 B=3.00						I=1/20,000 Q=1.33 B=1.50						
BOTTOM ELEVATION OF CANAL (m)	-5.40					-5.10						-4.79	
GROUND LEVEL (m)	-1.1	-0.5	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	-0.6	-0.7	-0.8	-1.0 -1.0
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000 12,200

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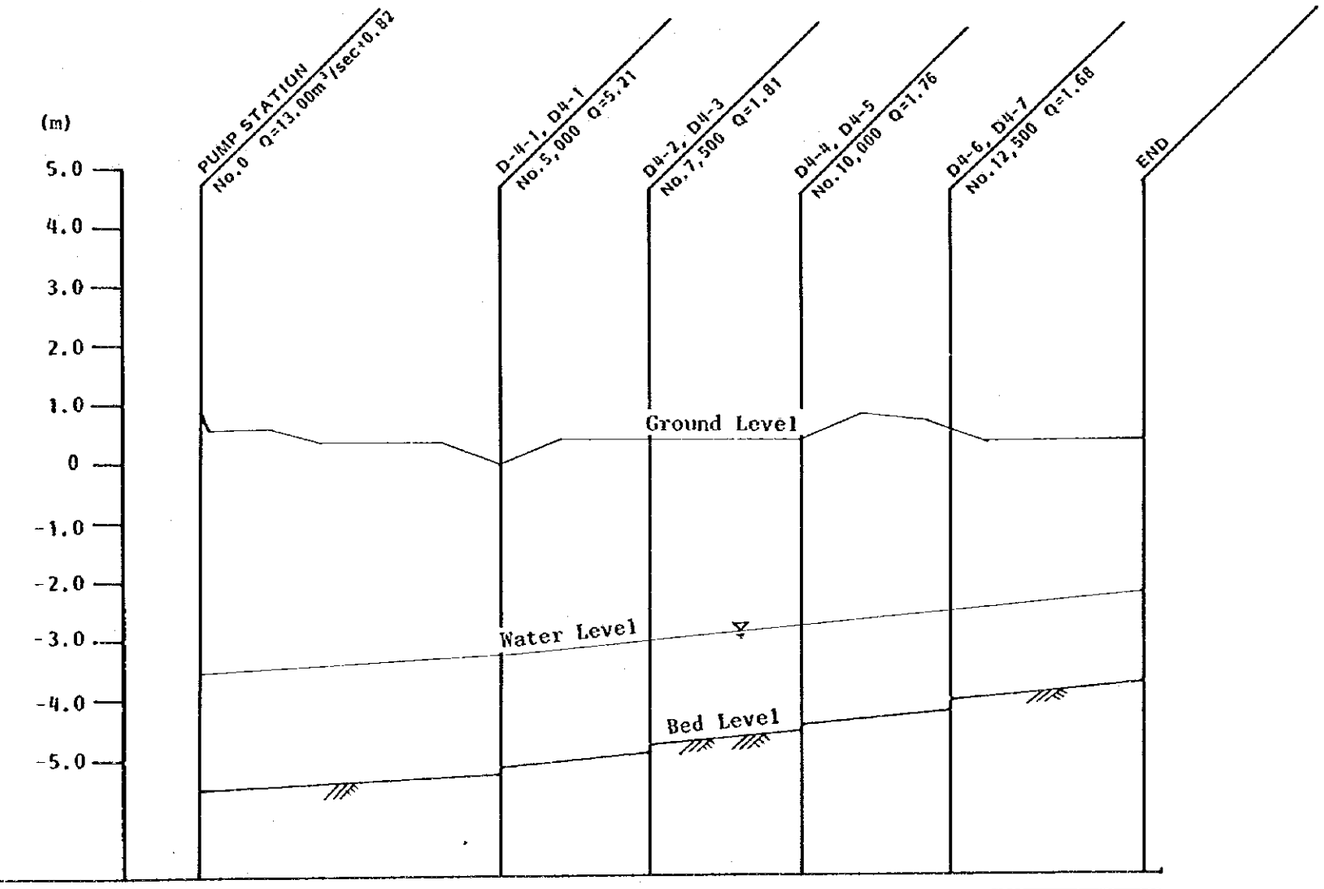
ARAB REPUBLIC OF EGYPT
MINISTRY OF LAND RECLAMATION

NORTH HUSSINIA VALLEY AND SOUTH PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN DRAINAGE CANAL, D-4

DATE	1986, JUNE	DWG. NO	45

JAPAN INTERNATIONAL COOPERATION AGENCY



GRADIENT	I=1/20,000							I=1/10,000									
	Q=13.00				B=15.00	Q=6.97		Q=5.16		Q=3.40			Q=1.72		B=1.50		
						B=5.00		B=4.00		B=2.50							
BOTTOM ELEVATION OF CANAL (m)	-5.50					-5.25 -5.15		-4.90 -4.80		-4.55 -4.45			-4.20 -4.00				-3.73
GROUND LEVEL (m)	0.9	0.6	0.4	0.4	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.7	0.4	0.4	0.4	0.4
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000	13,000	14,000	15,000	15,700

D-4-1

ARAB REPUBLIC OF EGYPT
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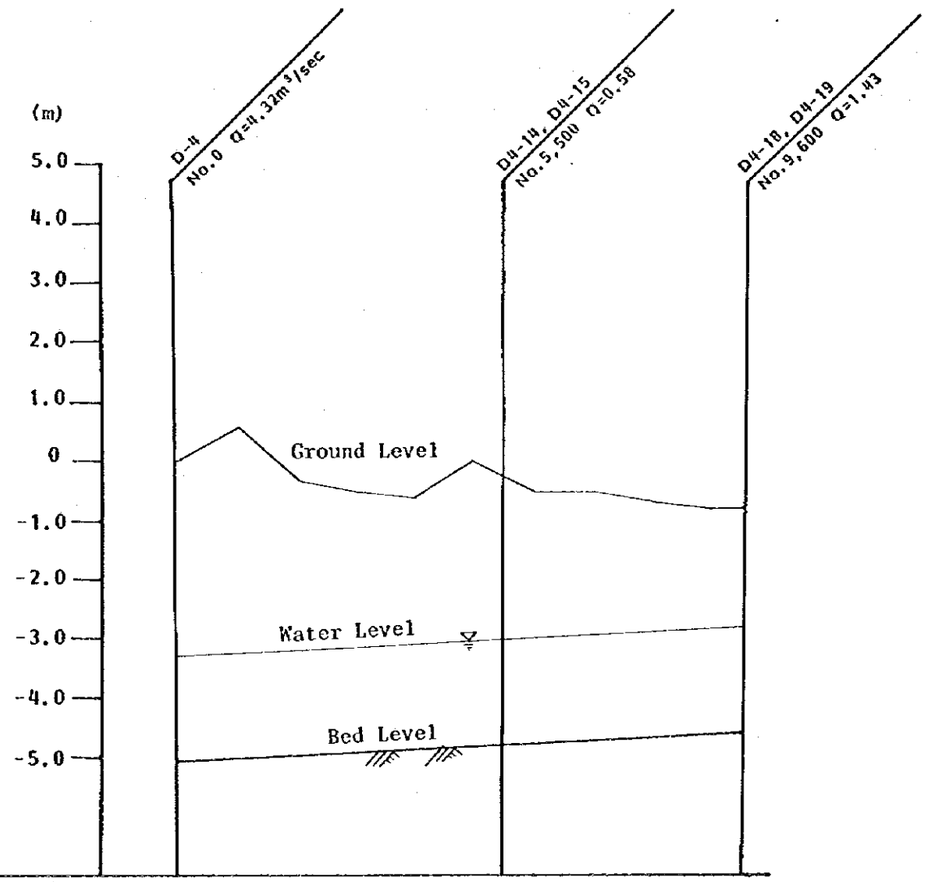
NORTH NUSSINIA VALLEY AND SOUTH
PORT SAID AGRICULTURAL DEVELOPMENT PROJECT

PROFILE OF MAIN DRAINAGE CANAL, D-4-1

DATE	1984, JUNE	DWG. NO	46

JAPAN INTERNATIONAL COOPERATION AGENCY



GRADIENT	I=1/20,000 Q=4.32 B=5.00 Q=1.91 B=2.00										
BOTTOM ELEVATION OF CANAL (m)	-5.07					-4.82					-4.59
GROUND LEVEL (m)	0.0	0.6	-0.3	-0.5	-0.6	0.0	-0.5	-0.5	-0.7	-0.8	-0.8
STATION NO.(m)	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	9,600